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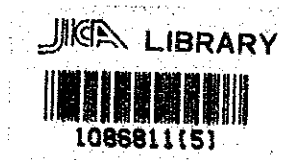
(Volume 1)

CONFIDENTIAL

UNITED STATES DEPARTMENT OF THE ARMY

**THE STUDY
ON
THE DEVELOPMENT OF MICRO, SMALL AND
MEDIUM SCALE METALWORKING INDUSTRIES
IN
THE REPUBLIC OF COLOMBIA**

(Volume II)



218.3⁰

SEPTEMBER, 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

国際協力事業団

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Organizations / Abbreviations
Used in the Report

ACOP I	ASOCIACION COLOMBIANA POPULAR DE INDUSTRIALES コロンビア中企業連盟
ACOLFA	ASOCIACION COLOMBIANA DE FABRICANTES DE AUTOPARTES 自動車部品製造者連盟
AND I	ASOCIACION NACIONAL DE INDUSTRIALES 全国産業連盟
B I D	BANCO INTERAMERICANO DE DESARROLLO 米州開発銀行
CFP	CORPORACION FINANCIERA POPULAR 国民金融公庫
COLCIENCIAS	FONDO COLOMBIANO DE INVESTIGACIONES CIENTIFICAS Y PROYECTOS ESPECIALES "FRANCISCO JOSE DE CALDAS" 科学技術・開発計画 "フランシスコ・ホセ・デ・カルダス" 援助基金
COPIME	CORPORATIVA DE INDUSTRIALES METALURGICOS LTDA. 金属業者連盟
CONAMIC	CONFEDERACION NACIONAL DE MICROEMPRESARIOS DE COLOMBIA コロンビア零細企業連盟
CORFAS	CORPORACION FONDO DE APOYO DE EMPRESAS ASOCIATIVAS 企業団体支援基金
DNP	DEPARTAMENTO NACIONAL DE PLANEACION 国家企画庁
DANE	DEPARTAMENTO ADMINISTRATIVO NACIONAL DE ESTADISTICA 国家統計庁
FEDEMETAL	FEDERACION COLOMBIANA DE INDUSTRIAS METALURGICAS コロンビア金属工業連合会
FCE	FONDO DE CAPITALIZACION EMPRESARIAL 企業資本形成基金
FIP	FONDO DE INVERSIONES PRIVADAS 民間投資基金
FNG	FONDO NACIONAL DE GARANTIAS 国家信用保証基金
FFI	FONDO FINANCIERO INDUSTRIAL 産業金融基金

FOMENTAR	FUNDACION FONDO DE GARANTIAS PARA EL DESARROLLO DE LA ECONOMIA SOCIAL Y SOLIDARIA 社会経済開発保証基金
FONADE	FONDO NACIONAL DE PROYECTOS DE DESARROLLO 国家開発計画基金
ICONTEC	INSTITUTO COLOMBIANO DE NORMAS TECNICAS コロンビア規格協会
IFI	INSTITUTO DE FOMENTO INDUSTRIAL 工業開発金融公社
INCOMEX	INSTITUTO COLOMBIANO DE COMERCIO EXTERIOR 貿易庁
PROEXPO	FONDO DE PROMOCION DE EXPORTACIONES 輸出振興基金
PROMIC	FUNDACION PROMOTORA SERVICIOS MICROEMPRESARIALES (財団法人) 零細企業振興会
SENA	SERVICIO NACIONAL DE APRENDIZAJE 職業訓練センター
UCONAL	UNION COOPERATIVA NACIONAL 協同組合連合会

Other Abbreviations

PNDM	PLAN NACIONAL PARA EL DESARROLLO DE LA MICROEMPRESA 零細企業開発国家計画
NGO	Non Governmental Organizations 民間団体
LEs	Large Scale Enterprises 大企業
Med-Es	Medium Scale Enterprises 中企業
MEs	Microenterprises 零細企業
SMEs	Small and Medium Scale Enterprises 中小企業
Sml-Es	Small Scale Enterprises 小企業

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**Chapter 4 CURRENT SITUATION OF MICRO, SMALL AND
MEDIUM SCALE METALWORKING INDUSTRIES**

Chapter 4 CURRENT SITUATION OF MICRO, SMALL AND MEDIUM SCALE METALWORKING INDUSTRIES

4.1 Analysis of Questionnaire and Corporate Diagnosis Results

4.1.1 Outline of Corporate Study

For the purpose of identifying problems facing metalworking industries in Colombia, a questionnaire survey and a corporate visit (diagnosis) survey were carried out. Under the cooperation of DNP, the Study Team prepared the questionnaire and the list of enterprises in metalworking business. The Study Team asked a local research company to send questionnaires by mail to the selected enterprises and collect them by visiting the enterprises. The research company obtained the appointments of all enterprises to which questionnaires had been sent, called on them, and collected the questionnaires while making the sheets completely filled through hearing with regard to incompletely written responses.

The corporate diagnosis survey was carried out by metalworking specialists of the Study Team, who visited the enterprises chosen at random from among those which responded to the questionnaire. The purposes of the survey were: 1) To diagnose the production and management abilities of MEs and SMEs engaged in metalworking, 2) to directly ask owners about their problems and learn their needs and 3) to compare responses in the questionnaire with actual situation.

The data collected from questionnaires was analyzed through computers.

4.1.2 Method of Questionnaire Survey

(1) Purposes and scope of the survey

1) Purposes

The purposes of this survey were to collect the basic data required to understand the current situation of micro, small and medium scale metalworking industries in Colombia, identify factors hampering the development and possible courses of development, and promising products, study various conditions necessary for their promotion, develop an overall development program and propose it to the country.

2) Scope

a) Geographical area

Since many of metalworking enterprises in Colombia are located in urban areas or their surroundings, the questionnaire survey was conducted in and around the following three cities:

BOGOTA

MEDELLIN

CALI including PALMIRA

b) Size of enterprises

The subject of the questionnaire survey was MEs and SMEs. In addition, a survey on large enterprises was carried out supplementally, with emphasis placed on the examination of their subcontracting linkage with MEs and SMEs.

Size of enterprises was classified based on the number of employees as follows:

Large enterprises : 200 employees or more
Medium enterprises: 50 - 199 employees
Small enterprises : 11 - 49 employees
Micro enterprises : 1 - 10 employees

Note that, since microenterprises consisting of one person are considered to be mostly engaged in commerce or service activities, rather than the manufacture of products, they are omitted in the questionnaire survey. Accordingly, enterprises with 2 - 10 employees were surveyed as micro enterprises.

c) Delineation of sub-sectors

In consideration of subcontracting relations between large enterprises, and MEs and SMEs in the metalworking industries, the latter was regarded as suppliers of parts and service to the former. Under this assumption, the following sub-sectors were selected for the Survey:

Small and Medium Scale Enterprises and Microenterprises (7 sub-sectors)

1. Casting
2. Forging
3. Plate Work / Welding
4. Plating
5. Machining
6. Machine Assembly
7. Presswork

Large Scale Enterprises (4 sub-sectors)

1. General Machine Industry
2. Electrical Machinery Industry
3. Transportation Equipment Industry
4. Furniture Industry

3) Items of questionnaire

The questionnaires were prepared separately for LEs, SMEs and MEs.

The questionnaire for LEs was primarily designed to examine their present subcontracting relations with SMEs and MEs based on their perception as users of subcontractors and their involvement in supporting and fostering subcontractors in the future.

With regard to the questionnaires for SMEs and MEs, questions were designed to identify the current situation and future outlook related to production technology, managerial/administrative and financial problems, their subcontracting relations with contractors (large enterprises) and relationship with trade associations.

The number of questions in the questionnaires was 39 in the case of LEs, and 115 and 117 for SMEs and MEs respectively.

The questionnaires were designed by the Study Team in English and translated into Spanish by DNP, then some expressions were modified to be suitable for actual survey under consultations with the research company. The draft thus worked out was then completed during final consultations between DNP and the Study Team. The questionnaire sheets are attached as ANNEX-V. Major items in the questionnaires for each size of enterprises are summarized as follows:

For Large Scale Enterprises

GE000 General
GE100 Products
GE200 Components
GE300 Subcontracting
GE400 Increase of Components Domestically Manufactured in Colombia
GE500 Future Plan
GE600 Outline of Subcontracting Enterprises

For Small and Medium Scale Enterprises

EPM000 General
EPM100 Products
EPM200 Raw Material and Facilities
EPM300 Condition of Subcontract
EPM400 Present Status of Subcontract
EPM500 Problems in Production Aspect
EPM600 Problems in Technical Aspect
EPM700 Problems in Managerial Aspect
EPM800 Financial System
EPM900 Future Plan

For Microenterprises

ME000 General
ME100 Products
ME200 Raw Material and Facilities
ME300 Condition of Subcontract
ME400 Problems in Production Aspect
ME500 Problems in Technical Aspect
ME600 Problems in Managerial Aspect
ME700 Financial System
ME800 Future Plan

(2) Directories used and the number of samples

1) Directories

The lists of enterprises classified by size utilized in this survey were prepared by DNP under

cooperation of the following organizations concerned:

List of Large Scale Enterprises: FEDEMETAL

List of Small and Medium Scale Enterprises:

DANE, CAMARA DE
COMERCIO, ACOPI,
BOLSA DE SUBCON-
TRATACION

List of Microenterprises : SENA, FUNDACION DE
MICROEMPRESARIO

Among the list of LEs, there were a fairly large number of those which did not indicate the numbers of workers and telephone numbers, which were supplemented by using other lists collected by the Study Team.

The list of SMEs was compiled by DNP in line with CIIU for each sub-sector and study area, based on 1985 survey data collected by DANE.

Just like the lists of large enterprises, a fairly large number of MEs lists had no descriptions of sub-sectors, the numbers of workers, telephone numbers, etc.

2) The number of samples

The number of samples for the survey was determined as follows:

- a) The number of responses required for reliable analysis of questionnaire survey was determined by two criteria; one is statistical (reliability 95%, error \pm 10%) and the other is the period and budget of the survey allowed to the Study Team. The expected rate of response was established as high as 90% because the questionnaires were to be collected by visiting each enterprise. The number of questionnaires to be distributed and the expected responses were planned as follows:

	<u>Distribution</u>	<u>Expected responses</u>
Large enterprises	48	42
Small & Medium enterprises	234	206
Micro enterprises	228	202
	<hr/>	<hr/>
	510	450

- b) Since the directories furnished by DNP did not cover all the manufacturers in Colombia, regional distribution ratios for enterprises in three cities selected for the survey were calculated on the basis of those for all manufacturing industries in the cities. The distribution was estimated by using data issued by DANE; namely "ANUARIO DE INDUSTRIA MANUFACTURERA-1986" and "RESUMEN DE LAS VARIABLES PRINCIPALES, SEGUN AREAS METROPOLITANAS, TOTAL NACIONAL 1986". Since Palmira was not included in the city of Cali in those data, the suitable Palmira portion was added to the Cali area.

As a result, the total number of manufacturing enterprises including metalworking enterprises in the three cities and ratios of the regional distribution were obtained as follows:

Districts	No. of enterprises	Ratio (a)
Bogota D.E. - Soacha	2,218	3.0
Cali - Yumbo	765+Palmira	1.5
Medellin - Valle Aburra	1,442	2.0

- c) Based on the regional distribution ratios (a), the number of enterprises for each size and in each city were determined.

- d) At the same time, the list of metalworking enterprises according to the study areas and enterprises sizes were prepared by removing non-metalworking enterprises from the lists furnished by DNP. Then the enterprises to be surveyed were selected from the list by the proportional sampling method, with care to choose the numbers determined in c). In the case that the number of enterprises in a sub-sector and/or in a study area was less than that in c), all the enterprises were used as the sample.

The method of selection of the target enterprises is described as follows:

Large enterprises

As a result of subtracting the metalworking enterprises from the list submitted by DNP, the population became very small. Therefore, all the enterprises excluding the non-metalworking businesses were used as the sample. (Total: 48 enterprises)

Small and medium enterprises

From the list of enterprises submitted by DNP, non-metalworking enterprises were removed to determine the number of enterprises for each of study areas and enterprises sizes. Enterprises to be surveyed were chosen by the proportional sampling method up to the numbers required. (Total: 234 enterprises).

Microenterprises

The same method as that for small and medium enterprises was adopted. (Total: 228 enterprises)

As a result, the number of questionnaire to be distributed and the number of expected re-

sponses, for each of study areas and enterprise sizes were determined as follows.

Preliminarily planned number of questionnaires distributed (in parentheses: expected number of responses)

Size of enterprises	BOGOTA	MEDELLIN	CALI	Total
LEs	31 (27)	9 (8)	8 (7)	48 (42)
SMEs	108 (95)	73 (64)	53 (47)	234 (206)
MEs	106 (94)	69 (61)	53 (47)	228 (202)
Total	245 (216)	151 (133)	114 (101)	510 (450)

(3) Survey method

The survey was conducted by a locally-contracted research company. The survey period was originally scheduled for a 42-day period from July 6 to August 17, but since the rate of response was lower than expected, the closing date was extended to the end of September.

The research company conducted the survey under the following setup:

The survey headquarters was placed in BOGOTA, with a project manager responsible for the entire process of survey. In MEDELLIN and CALI, one researcher specializing in this type of survey and a staff for arranging appointments with the enterprises were stationed on a full-time basis. In addition, investigators to visit the enterprises were stationed in each city; totaling 10 persons in BOGOTA, 12 in MEDELLIN and 10 in CALI during the busiest period.

The Study Team cooperated with the research company in the form of supervision and support. Team members accompanied investigators once in each study area to monitor the actual progress of survey and to help solve problems encountered in the course of survey.

The outline of field survey and the method are indicated below:

Supply of necessary documents: The Study Team furnished the research company with questionnaires, the list of enterprises to send the questionnaires, DNP-prepared letters of request for cooperation, and input sheets for use in the analysis.

Mailing of questionnaire: Together with the letters of request for cooperation by DNP and the research company, the questionnaires were sent by registered mail to the enterprises.

Confirmation of visiting date: On the third day from the mailing of questionnaire and thereafter, the research company phoned the enterprises to confirm the date of visit. Based on results of phone calls, a visiting schedule was prepared.

Visit and collection: The following methods were adopted concerning the company visits and collection of the questionnaires.

- a) An investigator called on each enterprise and collected the questionnaire while asking clarification and filling in blank or incompletely written columns.
- b) For questionnaires which were not completed because the responsible person was absent, an additional visit or phone call was made to fill out all the items.
- c) The questionnaires were completed during the corporate diagnosis survey (described below) by asking detailed questions to clarify or supply information to responses.

Entry to input sheets: Responses in each questionnaire were entered to input sheets for computer analysis.

Upon completion of the field work, subsequent work including computer analysis was entirely carried out in Japan.

(4) Collection of questionnaires

The original plan called for sending questionnaire sheets to a total of 510 enterprises and receiving responses from 450 in the 42-day period from July 6 to August 17, 1989. However, the rate of response was lower than expected for various reasons, the survey period was extended by about one and half months to the end of September, and the number of enterprises to send the questionnaire was increased to 556. Nevertheless, the number of the enterprises which responded to the survey amounted to 268, with the rate of response at 48.2%.

1) Rate of response

Total Rate of Response

	No. of enterprises	Rate 1 (%)	Rate 2 (%)
Responded	268	48.2	63.5
Bankrupted, moved, unknown address	134	24.1	-
Rejected	101	18.2	23.9
Unclear attitude	53	9.5	12.6
Total	556	100.0	100.0

Notes:

Rate 1: to the sum including the enterprises bankrupted, moved and with address unknown

Rate 2: to the sum not including the enterprises bankrupted, moved and with address unknown

2) Final results by survey area and enterprise size

The numbers of questionnaires distributed and responded are summarized as follows:

Comparison of Numbers of Questionnaires
Distributed and Responded

Size of enterprise	BOGOTA		MEDELLIN		CALI		SUM	
	dist.	res	dist.	res	dist.	res	dist.	res
LEs	33	10	9	7	8	1	50	18
SMEs	120	57	77	29	57	29	254	115
MEs	115	64	76	31	61	40	252	135
Total	268	131	162	67	126	70	556	268

The numbers of enterprises by study area and enterprise size in the above table are based on the company list furnished by DNP. However, it was found in the field survey that relatively a large number of enterprises were reclassified from one group to another, say from SMEs to MEs, as shown in the following table. It is conceivable that some small scale enterprises grew in a certain period of time and became ones in the group of larger enterprises, but it is not certain that all of these enterprises actually grew from the stage of smaller enterprises to that of larger ones. Considering that some statistical errors in the original list of DNP were found during the course of investigation and that as many as 7 companies were reclassified from LEs to SMEs, it may be conceivable that the original list is not completely reliable.

Following table summarizes the number of enterprises which size has changed for each study area and enterprise size. As shown in the following table, a total of 63 companies either grew or diminished in size.

If survey results are assumed to signify the current situation of affairs, the development of microenterprises in MEDELLIN and BOGOTA may be termed as especially conspicuous.

Number of Enterprises Found to Change in Size
at the Time of Questionnaire Survey

Size of enterprises	BOGOTA	MEDELLIN	CALI	Total
Micro to small and medium	17	25	6	48
Micro to large	0	1	0	1
Small and medium to large	3	0	0	3
Small and medium to micro	0	1	3	4
Large to small and medium	3	4	0	7
Total	23	31	9	63

3) Reasons for low rate of response

a) Since the company list was relatively old and incomplete, there were many cases in which the enterprises did not exist in the addresses indicated in the list due to bankruptcy, relocation, etc.

Such enterprises totaled 134, accounting for 24.1% of the total companies to which questionnaires were distributed.

b) There were companies which declined to respond based on the contentions that they had no obligations nor incentives for answering the questions and that such items as sales and profit margin concern secrecy matters for enterprises.

Such enterprises totaled 101, accounting for 18.2% of the total.

c) In Sml-Es and MEs, the persons in positions to answer the questions were frequently absent from their offices. Accordingly, there were cases in which the investigators could not meet the

persons despite repeated visits. The number of visits to an enterprise was usually 2-3 times, but 5-6 visits were required in a fairly large number of cases.

These enterprises are classified as those with "unclear attitude" in 1) Rate of response. They amounted to 53 enterprises, accounting for 9.5%.

- d) Not a few enterprises were uncooperative because they felt the past questionnaire survey brought no benefit to them.
- e) Collection activities in MEDELLIN was restricted due to a security-related problem.

.1.3 Corporate Diagnosis Survey

(1) Purposes of diagnosis

Purposes of corporate diagnosis were to examine the managerial status and production capabilities of the enterprises surveyed, and to identify problems in each sector concerning raw materials, sales and financial matters based on the examination of present access to these resources. And at the same time, it was designed to confirm the consistency of responses in the questionnaires obtained by the research company.

(2) Selection of enterprises and method of diagnosis

The corporate diagnosis was originally planned to conduct in the three cities -- BOGOTA, MEDELLIN and CALI -- and supplementally in BUCARAMANGA and BARRANQUILLA. Because of security reasons, however, the survey areas were virtually limited to BOGOTA.

To select the enterprises for visits, all of the 268 enterprises that made a response to the questionnaire were contacted, and 137 of them willing to receive the visit were called upon.

To proceed with the corporate diagnosis survey, 11 team members were grouped into several teams composed of 2 - 3 members and conducted examination in accordance with a previously-worked-out checklist. In addition, each specialist asked detailed questions and implemented diagnosis in his own specialized field.

The average number of visits by each team was set at 3 per day. The numbers of visited enterprises in each study area and enterprise size are indicated below. The list of such enterprises is attached as ANNEX-IV.

Number of Enterprises Visited

	LEs	SMEs	MEs	Total
BOGOTA	17	67	55	139
MEDELLIN	3	3	4	10
CALI	1	16	4	21
BUCARAMANGA	0	6	0	6
BARRANQUILLA	3	3	0	6
Total	24	95	63	182

4.1.4 Analysis of Questionnaire Survey and Corporate Diagnosis

(1) Outline of analysis method

Of 268 LEs, SMEs and MEs in BOGOTA, MEDELLIN and CALI, which responded to the questionnaire survey 18 LEs, which were surveyed for the purpose of learning their subcontract relations with smaller businesses, were omitted, and the remaining 250 enterprises (135 MEs and 115 SMEs) were then subjected to computer analysis. Furthermore, a total of 137 enterprises were selected and visited for interviewing. Combining the results of the questionnaire survey and the diagnosis survey, analysis is made in this section.

The response to the questionnaire was analyzed by a

computer according to enterprise sizes as well as sub-sectors.

In course of the computer analysis, it was found that the number of responses varied widely with sub-sectors. A subsector, for example, showed only one or two responses, therefore, the results of analysis by sub-sectors almost said nothing. In addition, remarkable differences revealed no statistical significance nor distinctive trend. Thus the analysis by sub-sector is omitted in this report.

The output analyzed by computer was attached to the Interim Report as ANNEX.

On the other hand, classification by the numbers of workers was carried out as follows; MEs were classified into two groups of one having 2-5 employees and the other group with 6-10 employees; Sml-Es were divided into two groups, one with 11-30 employees and the other with 31-49 employees; and Med-Es were classified into three groups having 50-99 employees 100-149 employees and 150-199 employees, respectively.

In connection with the analysis based on the number of workers, the data on enterprises that made no or insufficient response regarding the number of workers was removed. Therefore, the number of samples was reduced accordingly.

In the case that a company did not reply to a question in the questionnaire, the company was not included in the total for that question; the number of total responses was used as the denominator. In the event of multiple responses, not the number of responding enterprises but that of responses was used as the denominator in the analysis.

The results of the analysis are summarized on the basis of the question items in the questionnaire, and classified under the following 9 items:

Items of the Analysis

Items	Code no of questionnaire	
	MEs	SMEs
1) Background of enterprises year of establishment/area of factory/capital/age/salary/ membership, etc.	ME0044-026 ME030	EPM004-021 EPM028
2) Products/raw materials/facilities	ME101-203	EPM101-203
3) Subcontracting	ME301-314 ME315-320	EPM301-320 EPM401-403
4) Production in production aspect capacity/material acquisition/ quality control, etc.	ME401-408	EPM501-508
5) Problems in technical aspect technical level/technical assis- tance	ME501-505	EPM601-605
6) Problems in managerial aspect competitors/cost calculation	ME601-606	EPM701-706
7) Financial system financing/interest rate/usage	ME701-724	EPM801-824
8) Future plan prospect of products/demand, etc.	ME801-808	EPM901-908
9) Technological improvement and government assistance possible way to improve/new technology/ competition/governmental assistance/industrial park	ME809-816	EPM909-916

The code No. of the questionnaire shown in respective items of the following are in accord with the code No. in the questionnaire sheet, attached as ANNEX-V.

(2) Outcome of analysis

1) Background of enterprises

a) Year of establishment (ME004, EPM004)

Among MEs, the largest number of enterprises was established in 1985.; the number of enterprises established before then decreased, and most of the enterprises were founded after 1975. In the case of Sml-Es, the largest number of enter-

prises was founded in the period between enterprises was founded in the period between 1975 and 1979. Excluding the establishment after 1985, however, the distribution of the enterprises was almost uniform between 1969 and 1984.

In cases of Med-Es, on the other hand, many enterprises were relatively old to show a striking contrast with MEs.

It is leaned from the following table that some MEs grow to larger enterprises and some ones die out through the year, and that not many enterprises were founded as SMEs.

Year of Corporate Establishment

(Unit: %)

Size	Micro		Small	Medium
	2-5	6-10	11-49	50-199
Nos. of employees				
Nos. of enterprises	34	36	79	32
-1969	3	14	19	47
1970-1974	0	6	20	25
1975-1979	24	19	28	16
1980-1984	29	28	22	6
1985-	44	33	11	6
Total	100	100	100	100

b) Average factory size (ME005, EPM005)

The factory size per employee is almost constant in each scale of enterprises. On the other hand, factory area per person is 27-30 square meters for MEs, while that for SMEs is 18-19 square meters. It is a matter of course, however, that factory area of these enterprises, especially SMEs, has become greatly varied because of the difference in types of products which governs kinds of machinery and the number of equipment installed.

In the course of the corporate diagnosis, it was

learned that there exists quite big difference especially in MEs; a 6 square meter-factory of an enterprise was crowded with a lathe, a drilling machine, a grinder and a work stand, while another company has installed only 2-3 machines in its factory of about 300 square meter and, therefore, has much room for further space utilization.

Average Areas of Land, Building, etc.
(Unit: m²)

Size No. of employees	Micro		Small	Medium
	2-5	6-10	11-49	50-199
Land	94	245	546	2,384
Building	74	156	587	2,027
Office	30	47	104	1,075

c) Ownership of buildings/land (ME006, 007, EPM006, 007).

As for the ownership of buildings and land, about 70% of MEs with 2-5 workers rent them, as shown in the following table. So far as MEs with 6-10 workers and Sml-Es are concerned, the figure was 56-60%. Thus, percentage of enterprises borrowing their building and land somewhat declines, and that of ownership increases instead.

In the case of Med-Es, the percentage of ownership represented 72-79% of the total enterprises. It is observed from the above analysis that own assets increase gradually as an enterprise grows in size, therefore, the larger the enterprises becomes, the more management resources it has.

Ownership of Building and Land

(Unit: %)

Size No. of employees	Micro		Small	Medium
	2-5	6-10	11-49	50-199
Building: Owned	33	43	41	72
Rent	67	56	59	28
Total	100	100	100	100
Land : Owned	31	42	40	79
Rent	69	58	60	21
Total	100	100	100	100

d) Ownership of the company (ME008, EPM008)

As for an ownership and corporate type of MEs and SMEs, an individual ownership showed the largest share, followed by family enterprises and corporations with 2-5 workers, while more or less the same share was observed among the three types for MEs with 6-10 workers

As for SMEs, the share of corporations is overwhelmingly large, followed by family enterprises and individual ownership respectively.

Thus, most of MEs are the funded by owners or their families. In the case of SMEs, more than a half of them are corporations.

Ownership of Company

(Unit: %)

Size No. of employees	Micro		Small	Medium
	2-5	6-10	11-49	50-199
Individual	42	29	14	8
Family	29	32	30	31
Corporation	26	32	48	58
Others	3	7	8	3
<hr/>				
Total	100	100	100	100

e) Educational background of owners (ME009, EPM009)

For MEs with 2-5 workers, persons who have completed SENA course rank first among all the owners, accounting for 31%. If vocational high school graduates which show the second highest share are added, 48% graduated from practical training institutes or schools.

University graduates, on the other hand, accounted for no more than 14%. In the case of MEs with 6-10 workers, university graduates or those who received a similar level of higher education occupy the first place, accounting for 20%. Graduates of elementary to high schools including SENA amount to approximately 16% each, showing rather even distribution.

In the case of Sml-Es, the first place is held by university graduates, who account for 42% of the total. They are followed by graduates of vocational high schools, with 26% of the total. Most owners of Med-Es are university graduates, who represented 82% of the total.

The analysis of educational background of owners suggests that SENA or vocational high school graduates and university graduates account for overwhelming proportions in MEs and SMEs, respectively.

This implies that people with relatively high

education are likely to have entrepreneurship and the importance of education for owners to grow their companies.

Previous Job of Entrepreneur

(Unit:%)

Size No. of employees	<u>Micro</u>		<u>Small</u>	<u>Medium</u>
	2-5	6-10	11-49	50-199
Rank of school				
Primary school	8	17	4	0
Technical high school	17	15	26	6
High school	14	17	5	6
University or the equivalent	14	20	42	82
SENA	31	15	14	6
Others	16	16	9	0

Total	100	100	100	100

f) Previous jobs of entrepreneurs (ME010, EPM010)

Owners of entrepreneurs surveyed were mostly employees of MEs, SMEs or LEs, private traders or similar businesses. Looking at occupational background by enterprise size, employees of LEs, SMEs and MEs occupy the first place in cases of MEs with 2-5 and 6-10 workers. As for SMEs, former employees of SMEs and MEs accounted for the highest proportion. Details of occupational background are summarized in the following table:

Previous Job of Entrepreneur

(Unit:%)

Size No. of employees	Micro		Small	Medium
	2-5	6-10	11-49	50-199
SMEs and MEs	23	33	34	29
LEs	40	23	20	23
Trading house and similar	11	15	29	19
Others	26	29	17	29
Total	100	100	100	100

g) Type of employment and workers (ME011-023, EPM011-018)

Administrative staff accounted for relatively a uniform share of all employees regardless of enterprise sizes, ranging between 18% and 20%, whereas technical staffs varied widely among enterprises and without association with enterprise sizes. Looking at qualified and unqualified workers, the latter tends to increase in share with increase in enterprise size. This suggests that the increase in enterprise size leads to the increase in production and unskilled work.

As for type of employment, rather naturally, a percentage of family workers drops with increase in enterprise size, so does a percentage of part-time workers.

As a result, a percentage of permanent workers increases to suggest the process in which a growing enterprise is incorporated and develops into a modern corporate organization.

Type of Employment

Size of enterprises No. of employees	MEs		Sml-Es	Med-Es
	2-5	6-10	11-49	50-199
Administration	18	18	18	20
Technical staff	21	11	17	12
Qualified workers	41	50	35	32
Unqualified workers	20	21	30	36
Total	100	100	100	100

Type of Employment

Size of enterprises No. of employees	MEs		Sml-Es	Med-Es
	2-5	6-10	11-49	50-199
Family	35	31	11	5
Permanent	46	56	77	88
Temporary	19	13	12	7
Total	100	100	100	100

h) Average age of workers and monthly wages ME024, 025, EPM019-020)

When employees are grouped in the order of average age, the order is the same for MEs and SMEs as shown in the below table. The group of 21-30 years holds the largest shares and that of 31-40 years comes the second, followed by the age group of 17-20 years for each corporate size.

Average Age of Workers

(Unit: %)

Size of enterprises No. of employees	Micro		Small	Medium
	2-5	6-10	11-49	50-199
Ages (years old)				
13-16	0	2	0	0
17-20	8	14	4	3
21-30	73	65	69	55
31-40	19	19	26	42
41-	0	0	1	0
Total	100	100	100	100

The range of wage occupying the largest share in both MEs and SMEs as 32,561 - 65,120 pesos. The second place is held by the 65,121 - 97,683 pesos group excluding MEs.

The second place for MEs with 2-5 workers is the monthly wage category of less than 32,560 pesos. The workers earning the average wage of 97,684 - 130,244 pesos account for no more than 6% (only one case) in Sml-Es, and there is no employee who obtains a higher monthly wage than this in MEs and SMEs.

It is possible to say that the increase in enterprise size is positively associated with increase in wage.

Average Monthly Wage of Employees

(Unit: %)

Size of enterprises No. of employees	Micro		Small		Medium		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
Salary (pesos)							
- 32,560	14	7	0	6	0	0	0
32,561- 65,120	78	86	87	77	89	80	67
65,121- 97,683	8	7	13	11	11	20	33
97,684-130,244	0	0	0	6	0	0	0
Total	100	100	100	100	100	100	100

i) Average length of service (ME026, EPM021)

As can be learned from the below table, the largest number of employees has worked for 1 - 2 years in MEs and 3 - 5 years in SMEs. In the case of Med-Es with 150-199 workers, however, services for 1 - 2 years, 3 - 5 years and 6 - 10 years show almost same the share.

Thus, MEs most of which are family enterprises are predominantly staffed by workers with relatively short length of service. In other words, the length of service is relatively short in these enterprises, while it is learned that the larger the enterprise size is, the higher the percentage of long service becomes.

Average Length of Service by Workers

(Unit: %)

Size of enterprises No. of employees	Micro		Small		Medium		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
- 1 year	31	12	5	5	4	0	0
1- 2 years	36	42	12	17	14	20	33
3- 5 years	28	32	71	67	50	60	33
6-10 years	0	12	9	5	18	20	34
10- years	5	2	3	6	14	0	0
Total	100	100	100	100	100	100	100

j) Participation in trade associations (ME033, EPM028)

In the case of MEs with 10 workers or less, the largest number of the enterprises participate in foundations for microenterprises, of which about 36% of the total enterprises are its members. It is followed by the association of microenterprises, which has about 18% of the total as its members. These two are the main organizations for MEs in the country.

The organizations to which many Sml-Es belong as members are ACOPI and the foundation for microenterprises. The Sml-Es which are members of these organizations account for about 19%, respectively, for a total of 38%.

Participation in Trade Associations

(Unit: No. of enterprises)

Size of enterprises No. of employees	Micro		Small		Medium			Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
Name of organization								
ANDI	1	1	2	2	0	0	1	7
ACOPI	1	0	15	1	2	1	2	22
FEDEMETAL	0	0	5	3	13	0	1	22
Other associations	0	1	3	2	3	1	0	10
Foundation for MEs	9	11	16	0	1	0	0	37
Association of MEs	6	4	8	0	0	0	0	18
Others	12	10	21	7	6	3	1	60
Total	29	27	70	15	25	5	5	176

As for Med-Es, members of FEDEMETAL occupy an overwhelming percentage, with their affiliation rate coming up to 40% of the total respondents.

The above table shows that about 38% of MEs, approximately 33% of Sml-Es and around 29% of Med-Es belong to some "other" organizations. These are the bodies affiliated by the metal-working enterprises, automobiles, electrical equipment and other specific machinery concerned with the business lines of the enterprises, including:

COPIME (Cooperativa de Industriales Metalurgicos)
ACOLFA (Asociacion Colombiana de Fabricantes de Autopartes)
ASOPEL (Asociacion de Productores de Partes Electricas)
ACAIRE (Asociacion Colombiana de Aire acondicionado y Refrigeraciones).
ASEMOTOS
ASONAR
Fundacion Compartir
FUNDECOOP
FENALCO
CONALPIN (Cooperative Nacional Pequenos Industriales).

Such enterprises which are not affiliated with any organization or foundation can be found mainly among small-scale family enterprises in the category of MEs and those in good financial condition so far as Med-Es are concerned.

One of the merits for the enterprises to affiliate with such organizations or foundations is to have the access to credit for the working capital or investment capital for plant expansion. Many unaffiliated enterprises are those having difficulty in paying membership fees of these

bodies or the enterprises having own access to credit because of their good financial condition.

During corporate diagnosis survey, it was also confirmed that the use of informal financial service is increasingly found among smaller scale family enterprises.

2) Products, raw materials and facilities

a) Products (ME101, EPM101)

Among product groups, the enterprises engaged in the manufacture of structural metal products (Product code 3818) topped the list, as shown in the following table, amounting to 137 or 23.7% of the total responses. They were followed by the enterprises engaged in the manufacture of furniture and fixtures primarily made of metals (Product code 3812), which reached 105 or 18.2% of the total, and those producing fabricated metal products except machinery and equipment not elsewhere classified (Product code 3819) were 91 or 8.5% of the total.

Comparative Table of MEs and SMEs
Classified by Product and Processing Method

(Unit: No. of Responses)

Products Code	No. of responses	MEs								No. of responses	SMEs								Total No. of responses
		Processing method									Processing method								
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
3710	2	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3
3722	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3811	9	3	1	4	0	1	0	0	0	13	3	3	0	3	2	1	0	0	22
3812	35	0	0	14	3	4	8	1	0	70	9	1	26	3	4	12	9	0	105
3813	75	4	2	42	9	5	2	2	0	62	6	4	33	3	5	6	1	0	137
3814	9	2	0	2	0	5	0	0	0	7	0	1	0	0	1	4	0	0	16
3819	25	1	0	3	1	16	2	1	0	66	11	9	17	6	6	4	7	2	91
3822	7	2	1	1	0	1	1	1	0	9	1	0	1	0	0	4	1	0	16
3823	4	0	1	0	0	2	0	1	0	5	0	0	0	0	3	2	0	0	9
3824	4	0	0	1	0	2	1	0	0	16	0	0	5	0	6	5	0	0	20
3825	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	2	5	0	7
3826	0	0	0	0	0	0	0	0	0	7	0	1	1	0	3	2	0	0	7
3827	0	0	0	0	0	0	0	0	0	9	0	0	4	4	0	1	0	0	9
3829	1	0	0	0	0	0	1	0	0	21	2	0	4	1	6	7	0	0	22
3831	11	0	0	7	0	0	4	0	0	23	1	0	2	0	2	3	4	5	34
3833	1	0	0	0	0	0	1	0	0	4	0	1	0	0	0	1	2	0	5
3839	1	1	0	0	0	0	0	0	0	9	0	1	3	0	0	4	1	0	10
3843	7	1	0	1	1	3	0	1	0	14	2	0	3	2	0	1	5	0	21
3844	4	0	2	1	0	0	0	0	0	21	6	2	5	0	3	4	1	0	25
3849	1	0	0	1	0	0	0	0	0	3	1	0	0	0	0	0	0	0	4
3851	13	1	1	4	2	3	2	0	0	1	0	0	0	0	0	1	0	0	14
Total	210	15	10	82	16	42	22	7	0	368	43	23	104	22	42	64	36	7	578

Notes: 1) Explanations:

1. Casting
2. Forging
3. Plate work/welding
4. Plating
5. Machining
6. Machinery assembly
7. Presswork
8. Others

2) The total responses based on processing method are not necessarily in accord with that based on enterprises since some enterprises employ more than two processing methods and some others made no response.

In terms of customers for the products, large enterprises top the list in cases of both SMEs and MEs, as shown in the following table, jointly amounting to 303 or 52.4% of the total. Next

comes the group of foreign companies totaling 129 or 22.3%.

Comparative Table of MEs and SMEs
Classified by Product and Customer

(Unit: No. of responses)

Products Code	No. of responses	<u>MEs</u>							No. of responses	<u>SMEs</u>							Total No. of responses
		<u>Customer</u>								<u>Customer</u>							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7		
3710	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	3	
3722	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3811	9	1	1	0	3	2	4	0	13	0	0	0	5	1	6	22	
3812	35	1	1	4	14	4	13	0	70	18	13	13	24	16	36	105	
3813	75	4	4	14	24	22	50	0	62	4	25	16	6	3	32	137	
3814	9	0	0	0	8	0	5	0	7	0	4	0	0	0	2	16	
3819	25	1	6	2	3	3	16	0	66	19	23	21	21	6	25	91	
3822	7	1	3	3	1	0	1	0	9	1	0	0	4	1	5	16	
3823	4	1	0	1	0	2	2	0	5	1	1	2	1	1	2	9	
3824	4	0	1	1	2	0	1	0	16	0	1	3	2	0	13	20	
3825	0	0	0	0	0	0	0	0	7	0	1	0	4	0	2	7	
3826	0	0	0	0	0	0	0	0	7	1	5	4	1	0	7	7	
3827	0	0	0	0	0	0	0	0	9	1	1	2	8	1	3	9	
3829	1	0	0	1	0	0	0	0	21	9	10	7	12	3	19	22	
3831	11	0	1	7	3	0	0	0	23	2	6	5	3	3	21	34	
3833	1	0	0	0	0	1	1	0	4	0	0	0	3	2	0	5	
3839	1	0	0	1	1	0	1	0	9	5	7	5	3	2	5	10	
3843	7	1	0	1	3	5	4	0	14	1	4	1	6	1	5	21	
3844	4	0	0	1	1	2	0	0	21	0	8	6	9	0	8	25	
3849	1	0	0	1	0	0	1	0	3	0	3	0	3	0	0	4	
3851	13	7	1	6	3	6	13	4	1	0	1	1	0	0	0	14	
Total	210	17	19	43	66	47	112	4	368	62	113	86	115	40	191	24	578

Notes: 1) Explanations:

1. Government organizations
2. State-operated companies
3. Joint ventures with foreign concerns
4. Foreign enterprises
5. SMEs or MEs
6. LEs
7. Traders

- 2) The total responses based on customers are not necessarily in accord with those based on enterprises since some enterprises deliver their products to more than one customer and some others no response.

Classified by the processing method, plating work and welding accounted for the largest share in number for both SMEs and MEs, reaching 186 or 34.8% of the total responses. The second place was held by machinery assemblers totaling 86 responses or 16.1% and those of machining enterprises accounting for 84 or 15.7% of the total. They were followed by casting, 58 responses; presswork, 43; plating, 38; and forging, 33. Total production could not be obtained because it was indicated in weight or pieces depending upon responses made by enterprises.

Comparative Table of Production by Processing Method
(Unit: No. of responses)

Processing	MEs				SMEs			
	No. of re-sponses	Production			No. of re-sponses	Production		
		Tonnage	Q'ty	Other		Tonnage	Q'ty	Other
Casting	15	-	56,000	-	43	70,008	7,560	-
Forging	10	2	480	1	23	25	2,900	31,083
Plate work/ Welding	82	4	12,065	300	104	160	24,194	12,180
Plating	16	0	0	0	22	49	99	-
Machining	42	5	447,800	-	42	9	12,437	-
Machinery assembly	22	-	947	-	64	20	108,535	250
Presswork	7	-	343	-	36	100,006	81,189	-
Others	0	0	0	0	7	4	-	-

b) Parts and raw materials (ME201, EPM201)

Of parts and raw materials, those especially in large volume are rolled steel products, which are obtained in the following methods:

Procurement of Rolled Steel Products

Parts code	Size of enterprises	Imports			Domestic products		
		Ton	Nos.	Others	Ton	Nos.	Others
37104	MEs	200,045	772	15	13	15,100	-
	SMEs	102,233	7,973	3,393	794	68,830	6,484
	Total	302,278	8,745	3,408	807	83,930	6,484
37105	MEs	100,100	67	500	211	7,040	380
	SMEs	9,058	4,132	5,690	1,117	29,154	130,910
	Total	109,158	4,199	6,190	1,328	36,194	131,290

Totaling the imports and domestic procurement, hot rolled steel products (Parts code 37104) purchased by the enterprises were 303,085 tons, 92,675 numbers, and 9,892 in other unit. Of these, shares of imported products were 99.7% in terms of weight, 9.4% in volume, and 34.5% in other unit.

Cold rolled steel products (Parts code 37105) obtained totaled 110,486 tons in terms of weight, 40,393 numbers in volume, and 137,480 in other unit. Of these, shares of imported products amounted to 98.8% in terms of weight, 10.4% in volume, and 4.5% in other unit.

Actually, no cold rolled steel is produced in Colombia and, therefore, the enterprises who responded that they purchased the locally produced products might consider "the purchase from a middle man" as "locally produced".

c) Machinery and facilities (ME202, EPM202)

Responses concerning machinery and facilities used by the enterprises are summarized in the following table. Comparison of MEs and SMEs, indicates the following:

- The number of machinery and facilities installed by SMEs is about two times those by MEs.
- Self-manufactured machinery and facilities account for a major portion in both SMEs and MEs.
- The average years of use by SMEs are twice as many, to indicate that the facilities of MEs are relatively newer. The result reflects the age of enterprises, namely MEs are younger than SMEs in ages from their establishment.

One of the prominent features is that enterprises with 50-99 workers have the largest number of and newest facilities. Since their book value is overwhelmingly higher than that of the enterprises in other categories, it is supposed that many of the enterprises have high-class facilities.

Comparison of Machinery/Facilities

Size of enterprises	No. of employees	Total Nos.	No. of inhouse production	Book value (million pesos)	Average age
MEs	2-5	6.03	5.82	3.34	4.36
	6-10	8.46	6.14	2.39	5.69
Average of MEs		7.31	5.99	2.92	5.00
Sml-Es	11-30	10.22	9.80	24.94	10.26
	31-49	10.38	14.00	25.64	10.33
Med-Es	50-99	23.79	21.95	1,106.91	7.71
	100-149	16.20	15.50	4.68	7.99
	150-199	21.00	21.00	20.80	6.75
Average of SMEs		14.20	13.15	258.37	9.50

d) Facilities utilization rate (ME203, EPM203)

The facilities utilization rate is as shown below.

MEs with the facilities utilization rate of 71-100% account for 39.4% of the total. The enterprises with the utilization rate of 51-70% amount to 28.2%, and those with the 31-50% utilization rate amount to 26.8%.

With regard to SMEs, those with the utilization rate of 51-70% account for 47.9% of the total, followed by those with the utilization rate of 71-100%, which total 34.9%, and by the enterprises with the utilization rate of 31-50%, which occupy 13.2%.

Facilities utilization rates are generally low to suggest that order bookings are much smaller than production capacities.

Comparison of Facilities Utilization

Size of enterprises	No. of employees	Facilities utilization rate				
		0-10%	11-30%	31-50%	51-70%	71-100%
MEs	2- 5	0	0	29.7	37.9	32.4
	6- 10	2.9	8.8	23.5	17.7	47.1
Average of MEs		1.4	4.2	26.8	28.2	39.4
Sml-Es	11- 30	1.3	5.2	14.3	46.8	32.4
	31- 49	0	0	12.5	50.0	37.5
Med-Es	50- 99	0	0	13.6	40.9	45.5
	100-149	0	0	0	80.0	20.0
	150-199	0	0	0	100.0	0
Average of SMEs		0.8	3.3	13.2	47.9	34.9

3) Subcontracting relations with customers

a) Ratio of subcontracting to total sales (ME301, EPM301)

The average ratio of subcontracting to total sales diminishes as the enterprises become larger; that is from 60% for MEs with 2-5 employees to 5.5% for Med-Es with 150-199 employees. The smaller the enterprises become, the higher the ratio of subcontracting is.

At the point that the number of employees exceeds 50 persons, the ratio of subcontracting suddenly becomes lower.

It is deemed that the metalworking enterprises in Colombia, when the number of employees exceeds 50, increase their in-house production or contrarily become contractors to have subcontractors.

Ratio of Subcontracting to Total Sales

(Unit: %)

	Employees	Average	Highest	Lowest
MEs	2- 5	59.8	100.0	2.0
	6- 10	41.9	100.0	1.0
Sml	11- 30	42.2	100.0	2.0
	31- 49	41.6	100.0	2.5
Med-Es	50- 99	22.4	70.0	2.0
	100-149	14.2	30.0	2.5
	150-199	5.5	10.0	1.0

b) Interest in subcontracting business (ME315-319, EPM315-319)

A total of 80.7% of MEs and 50.0% of SMEs are interested in subcontracting business. Strong interest is shown especially in the furniture sector in both MEs and SMEs, indicating that the sector facing overcompetition intends to secure stable business through expansion of subcontract business.

The high interest in subcontract business shown by MEs is understandable in consideration of their need for growth based on stable rate of order booking. The low interest in such business on the part of SMEs, on the other hand, is considered to be due to the fact that many of the enterprises in this category have reached the level of using subcontractors.

Or it may be said that conditions related to subcontracting between SMEs and LEs which have not developed well to form an upstream of SMEs.

The Rate of Interest on
Subcontracting

(Unit: %)

Size of enterprises	MEs	SMEs
No. of employees	2-10	11-199
Having interest	80.7	50.0
Having no interest	19.3	50.0

Degree of Interest in Subcontracting by Industry Group

(Unit: %)

Sectors	Having interest		Having no interest	
	MEs	SMEs	MEs	SMEs
Agricultural machinery	40.0	40.0	60.0	60.0
Machine-tools	75.0	0.0	25.0	100.0
Transportation equipment	80.0	20.0	38.5	61.5
Electrical household appliance	100.0	75.0	0.0	25.0
Industrial electric machinery	50.0	57.1	50.0	42.9
Furniture	86.2	62.5	13.8	37.5
Steel structure and metal products	86.7	48.3	13.3	51.7

Among reasons for the interest in subcontract business indicated by MEs, "Increase in sales revenue" accounted for 22.8%; "Diversification of products" 18.7%; both "Stabilization of business by long terms contract" and expectation of "Technical assistance" 17.1%; and "Supply of materials from clients" accounted for 6.5%. In the case of SMEs, "Increase in sales revenue" accounted for 25.4%, "Business stabilization by long terms contract" reached 19.4%, "Technical assistance" came up to 14.9%, and "Diversification of products" amounted to 14.2%, while "Supply of materials from clients" stood at 7.5%.

What is expected by enterprises from diversification of products is resultant sales increase. The responses on "Diversification of products" and "Increase in sales revenue" aggregately accounted for about 40% in cases of both MEs and SMEs. Accordingly, this can be interpreted that about 40% of the enterprises seek corporate growth through subcontracting, while approximately 19% endeavor for business stability.

Reasons for Showing Interest
in Subcontracting

(Unit: %)

	1	2	3	4	5	6
MEs	17.1	22.8	18.7	17.1	14.6	6.5
SMEs	19.4	25.4	14.2	14.9	16.4	7.5

- Note:
1. Stability of business by long term contract
 2. Sales increase
 3. Diversification of products
 4. Technical assistance
 5. Financial assistance
 6. Supply of materials from clients

Note that some MEs have not received any subcontracting orders, although they have much interest in such business. Major reasons for this are lack of fund for investment to meet the contractor's requirements (39.3%), non-existence of channels with larger enterprises (31.5%) and insufficient production capacity (23.6%). These are believed to reflect the fact that the existence of subcontracting exchange service (BOLSA DE SUBCONTRATACION) is not sufficiently known or utilized.

In the case of SMEs, non-existence of channels with large enterprises and lack of investment fund to meet the contractor's requirement were cited as main reasons (36.4% each). The enterprises who cited these reasons are concentrated on those with less than 100 employees. Almost the same factors as the case of MEs are considered to have brought about such tendency.

Based on results of interview with the enterprises, it is said that subcontracting business in the field of the automobile parts is monopolized by a limited number of subcontractors so that it is almost impossible for the newcomers to enter the market.

Reasons for Lack of
Subcontracting Work

(Unit: %)

	1	2	3	4
MEs	31.5	23.6	39.3	5.6
SMEs	36.4	14.6	36.4	12.7

- Note: 1. Have no channel with large enterprises
 2. Capacity of equipment is not sufficient
 3. Lack of fund for investment to correspond to contractor's requirement
 4. Others, specify

Meanwhile, notable among the reasons mentioned by the enterprises showing no interest in subcontract business were "Dedicated to produce only small products (such as consumer goods)" that are not used as components and parts by larger enterprises (47.6%) and "Can keep independence from other enterprises" (28.6%) followed in the case of MEs. As for SMEs, "Can keep independence from other enterprises" amounted to 38.1%, followed by "Dedicated to produce only small products" with 27.0%. Thus,

their order is reverse to that for MEs. If the enterprises manufacturing the products that cannot be subcontracted are excluded, possibility of interference from other enterprises becomes the largest reason, which well reflects the disposition of the Colombian people attaching importance to independence. This disposition, on the other hand, is thought to hamper development of subcontracting relations or inter-sector connections.

Reasons for Showing No Interest
in Subcontracting Work

(Unit: %)

	1	2	3	4
MEs	28.6	14.3	47.6	9.5
SMEs	38.1	22.2	27.0	12.7

- Note:
1. Can keep independence from other enterprises
 2. Satisfied with the present business situation
 3. Dedicated to produce only small products for Colombian markets
 4. Others, specify

In both MEs and SMEs, those which show interest in subcontracting business expect financial assistance from customers. This tendency is more pronounced in enterprises with fewer employees. The above table (Reasons for Showing No Interest in Subcontracting Business) revealed general attitudes of MEs in Colombia to avoid the interference from other businesses, while it is indicated in the analysis that the institutional credit system is qualitatively and quantitatively insufficient for these enterprises that are in chronic shortage of funds.

The second reason for the interest in subcontracting business is technical support by customers or contractors for MEs and SMEs.

Expectations for Customers for
Improvement of Subcontracting Relations

(Unit: %)

	1	2	3
MEs	34.7	57.1	8.2
SMEs	21.2	44.2	34.6

Note: 1. Technical support
2. Financial support
3. Others, specify

c) Condition of subcontract (ME302-314, EPM302-314)

In the case of MEs, 85% felt that quality requirements demanded by their customers are acceptable or easily attainable, so did 80% of SMEs.

Taking into account the fact that the experts of the Study Team diagnosed that quality of metalworking products in Colombia was relatively poor from the international standard, the above figure does not mean that the technical and quality control levels of subcontractors are high. Rather, it indicates that the metalworking industry in Colombia is not aware of importance of product quality. Furthermore, the lack of concerns for product quality reflects the fact that the country's domestic product protection and import substitute policies have led to the manufacture of products by copying foreign products, not looking at competition in foreign markets, and that the domestic metalworking industry and public organizations who provide technical support have not

been seriously committed to improvement of product quality.

Quality Required by Clients

(Unit: %)

	1	2	3
MEs	14.8	70.4	14.8
SMEs	15.2	65.2	19.7

Note: 1. Easy to satisfy
 2. Acceptable
 3. Not acceptable (too severe)

As for quantity of orders from contractors, 67.3% of MEs regarded it as adequate, while 18.2% said it is very much, thus suggesting their general satisfaction with the present level of order quantity. A similar trend is observed among SMEs, 56 of which (82.4%) commented as adequate or very much. This data is in complete accord with the observations obtained during corporate visits -- that most of MEs and SMEs were satisfied with the existing condition and did not show much enthusiasm to achieve growth by investing in facilities expansion or new equipment installation.

Orders from Customers

(Unit: %)

	1	2	3
MEs	14.6	67.3	18.2
SMEs	17.7	73.5	8.8

Note: 1. Too little
 2. Adequate
 3. Too much

With regard to the time of delivery requested by customers, about 70% of both MEs and SMEs responded that it is acceptable or not strict.

This fact indicates that these enterprises receive orders within their production capacity or to the reasonable degree in consideration of their capacity. While such attitude is understandable, the effect of production efficiency improvement through experience to delivered products in a relatively short period of time is often observed in subcontractors of advanced countries. From this viewpoint, Colombian subcontractors appear to lack enthusiasm toward corporate growth.

Delivery Demanded Time
by Contractors

(Unit: %)

	1	2	3
MEs	3.5	68.4	28.1
SMEs	4.4	61.8	33.8

Note: 1. Not strict
2. Acceptable
3. Too strict

As reasons for being unable to meet customers' quality requirements, quantity of orders and time for delivery, 34.4% of MEs mentioned "Insufficient production capacity" followed by "Technical Difficulties," 25.0%; "Insufficient labor force," 12.5%; and "Inadequate manufacturing planning," 6.3%.

Reasons for Inability
to Meet Customers' Demand

(Unit: %)

1	2	3	4	5
12.5	34.4	6.3	25.0	21.9

- Note:
1. Insufficient labor force
 2. Insufficient production capacity
 3. Inadequate manufacturing planning
 4. Technical difficulties
 5. Others, specify

Credit is a major method of payment by customers to subcontractors; it amounted to 57.4% for MEs and 65.7% in the case of SMEs.

Method of Payment by Customers

(Unit:%)

	1	2	3
MEs	33.3	57.4	9.3
SMEs	25.4	65.7	9.0

- Note:
1. Cash
 2. Credit
 3. Others, specify

While payment was made mainly in the form of credit, more than 80% of those in both MEs and SMEs responded that payment delays often or sometimes occurred. This is considered to deteriorate cash flow of SMEs.

Payment by Customers

	(Unit:%)		
	1	2	3
MEs	12.5	80.4	7.2
SMEs	16.2	66.2	17.7

Note: 1. Always delay
 2. Sometimes delay
 3. Without delay

Meanwhile, the subcontractors receiving financial assistance from customers remain at less than 20% levels in both MEs and SMEs. Therefore, the subcontractors have to overcome the lack of cash flow from other sources. Thus, relations with customers are ordinary business relationship rather than close relations, such as those between parent and subsidiary companies, in Colombia.

Expectation for Financial Assistance from Customers

	(Unit: %)	
	Receive	Not receive
MEs	12.5	87.5
SMEs	18.2	83.3

The MEs and SMEs receiving technical assistance from customers accounted for about 16.5% of the total responses. This indicates that, just like survey results concerning financial assistance, MEs and SMEs in Colombia do not have close relations with customers but are engaged in independent business operation.

Technical Support from Customers
(Unit: %)

	Receive	Not receive
MEs	16.4	83.6
SMEs	16.7	83.3

In the case of enterprises who said they receive technical support from customers, contents of the support are mainly composed of advice and quality inspection.

Contents of Technical Support
by Contractors

	(Unit: %)				
	1	2	3	4	5
MEs	0.0	70.0	20.0	0.0	10.0
SMEs	7.1	35.7	42.9	0.0	14.3

Note: 1. Training
2. Advisory
3. Inspection
4. Management
5. Others, specify

As regards the state of orders from customers, 51.9% of MEs and 65.1% of SMEs indicated stable order rate. It is judged, accordingly, that the enterprises having subcontracting relations with customers are capable of continuing relatively stable operations.

Order Rate from Customers

(Unit: %)

	1	2	3
MEs	51.9	46.3	1.9
SMEs	65.1	33.3	1.6

Note: 1. Stable
 2. Spot order
 3. Others

Supply of components or raw materials from customers is at low levels for both MEs and SMEs. The proportion for the former group proves to be 5.3%, and that for the latter amounts to 11.0%.

Whether Components or Raw Materials are Supplied by Customers or Not

(Unit: %)

	Supplied	Not supplied
MEs	5.3	94.7
SMEs	11.0	89.0

A total of 70.2% of MEs and 56.8% of SMEs are engaged in customized production based on manufacturing drawings provided by customers.

Whether Manufacturing Drawings are Supplied or Not

(Unit: %)

	Supplied	Not supplied
MEs	70.2	29.8
SMEs	56.8	43.2

d) Government assistance expected by MEs and Ms (ME320, EPM320)

In complete accord with the results of the above survey on what is expected from enterprises/customers for improving subcontracting relations (ME319 and EPM319), the governmental assistance most strongly desired by MEs and SMEs is "loan." A total of 28 MEs out of the total of 61 that responded to the questionnaire (45.9%) and 37 SMEs out of 86 (43.0%) hoped for improvement of the loan system.

Governmental assistance desired by both MEs and SMEs next to loans is other financial support. When their first and second responses are combined, 67.3% of MEs and SMEs (99 enterprises of total 147 ones) are distressed with financial problems.

As for technical assistance, 16.4% of MEs and 14.0% of SMEs are seeking some from the government.

As SENA has been providing vocational training nationwide, the assistance desired by these enterprises is considered to be more advanced techniques beyond the scope of occupational training. Since improvement of production technology requires a large amount of investment, e.g., testing equipment, it seems impossible for MEs and SMEs to tackle the development of new products or improvement of their present ones solely based on their own financial resources. Meanwhile, Colombia does not have many public research and development institutions or testing laboratories, which are expected to provide technical support for MEs and SMEs. It is possible to say that this situation caused requirement for technical assistance among MEs and SMEs.

Assistance Expected from the Colombian Government

	No of employees	1		2		3		4		5		6		Total	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
MEs	6 - 10	12	38.7	8	25.8	5	16.1	0	0.0	4	12.9	2	6.5	31	100.0
	2 - 5	16	53.3	5	16.7	5	16.7	0	0.0	3	10.0	1	3.3	30	100.0
Total		28	45.9	13	21.3	10	16.4	0	0.0	7	11.5	3	4.9	61	100.0
SMEs	11 - 30	24	49.0	11	22.5	6	12.2	1	2.0	4	8.2	3	6.1	49	100.0
	31 - 49	4	36.4	4	36.4	2	18.2	0	0.0	1	9.1	0	0.0	11	100.0
	50 - 99	5	26.3	6	31.6	3	15.8	0	0.0	1	5.3	4	21.1	19	100.0
	100 - 149	3	75.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	4	100.0
	150 - 199	1	33.3	0	0.0	1	33.3	0	0.0	0	0.0	1	33.3	3	100.0
Total		37	43.0	21	24.4	12	14.0	1	1.2	7	8.1	8	9.3	86	100.0

- Note: 1. Loan
 2. Other financial support, specify
 3. Technical assistance
 4. Management consulting
 5. Marketing support
 6. Others, specify

e) Purpose of subcontracting (EPM401, 402)

As reasons for subcontracting, the greatest number of enterprises pointed out "Specialized process/equipment is required," followed by "For cost reduction."

These answers represent standard reasons for seeking subcontractors. It was learned, in the course of visits to companies and of interviews with metalworking industrial associations, that manufacturing industries in Colombia generally do integrated production from parts to end-products, which represent relatively low production efficiency.

However, more than a half of responding enterprises (55.9%) replied that the ratio of subcontracted work to total production cost is less than 10%. Therefore, the production system to use subcontractors has not been widely developed in Colombia.

Reasons for Subcontracting

(Unit: %)

Priority of significance	Items	1	2	3	4	5
Priority No.1		11.5	15.4	46.2	11.5	15.4
Priority No.2		8.7	8.7	30.4	21.7	30.4
Priority No.3		16.7	5.6	11.1	22.2	44.4

- Note: 1. Order amount is beyond own capacity
 2. Labor shortage
 3. Specialized process/equipment is required
 4. To correspond to sporadic increase of order amount
 5. For cost reduction

Ratio of Subcontracting to Total Production Cost

(Unit: %)

Less than 10%	11-30%	31-50%	51-70%	More than 70%
55.9	35.3	5.9	2.9	0.0

4) Problems in production aspect

a) Is production Capacity Enough? (ME401, EPM502)

If it is not enough, how much amount is required for investment? (ME402, EPM502)

In this response, MEs and SMEs showed clear difference. In the case of MEs, those who mentioned the insufficient production capacity

surpassed the enterprises which answered that it is enough. As for SMEs, on the other hand, those indicating sufficiency are more than the enterprises which responded that the capacity was not enough. The proportion of the enterprises indicating insufficiency is the highest in the case of the enterprises with 2-5 workers, at 67%.

This seems to be an indication that the enterprises with 2-5 employees are distressed with the lack of capital for investment.

Meanwhile, investment funds required by the enterprises which indicated insufficiency of funds are getting larger in line with corporate scale (number of employees), but no difference was seen in the per-enterprise investment funds required between the enterprises with 2-5 employees and those with 6-10 workers.

A great difference in investment requirement was seen between MEs and SMEs. This means that SMEs require more advanced machinery and equipment.

Is Production Capacity Enough?

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
Sufficient	33	48	62	63	79	80	67
Insufficient	67	52	38	37	21	20	33

How Much Investment Fund is Required
in Case of Insufficiency?

(Unit: Million pesos/enterprise)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
Amount of investment	2.4	2.2	29.0	40.3	57.2	100.0	-

b) Are raw materials easily obtained? (ME403, EPM503)

If not, What Is the Reason? (ME404, EPM504)

It is learned that materials can be obtained more easily than originally expected.

As for the enterprises which said it is not easy to obtain materials, little difference was observed among enterprises of different sizes, with only the proportions of enterprises with 31-49 workers and also those with 150-199 employees being relatively high at 37% and 33%, respectively.

Are Raw Materials Easily Obtained?

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
Easy	83	77	86	63	87	80	67
Not easy	17	23	14	37	13	20	33

The reasons for difficulty in obtaining the materials were asked to be selected from among the five following items, with plural answers accepted:

Item No. 1: Production area of raw materials is far from factory.

Item No. 2: It is difficult to purchase imported raw materials in the domestic market.

Item No. 3: Demand of raw materials is bigger than supply in the domestic market.

Item No. 4: Materials produced in Colombia is not satisfactory in quality.

Item No. 5: Others

As a result, it was learned that there is no response which showed significantly high percentage. Responses with somewhat higher percentage were "4. Materials produced in Colombia is not satisfactory in quality" and "2. It is difficult to purchase imported raw materials in the domestic market". In particular "4" accounted for 100% in the group of enterprises with 150-199 workers, because this is due to the fact that only one company in the group responded to the question.

If Raw Materials Are Not Easily Obtained,
What Is the Reason?

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
1	10	11	16	9	0	33	0
2	20	22	29	18	38	34	0
Reason 3	15	17	26	27	25	0	0
4	35	28	19	27	37	0	100
5	20	22	10	18	0	33	0

- c) From where raw materials are obtained? (ME405, EPM505)

As a result of a survey conducted with the sources of raw materials classified into 1. General market, 2. Supply from customers and 3. Others, it was learned that purchased from the general market accounted for a dominant share in both enterprise size and industry group classifications. As a result, tables are omitted here.

- d) Methods of quality control (ME406, EPM506)

The response, "To check when trouble occurs," showed the highest percentage in the case of MEs. As for SMEs, its percentage is also the highest among the enterprises with 11-30 workers, and the proportion goes down as the enterprise becomes larger.

Meanwhile, the shares of "First product inspection" and "Simple check list including sampling" rise as the enterprise becomes larger.

The share of the enterprises using control charts also increases with increase in enterprise size, but 20% at most. The figure is 50% in the case of the enterprise with 150-199 workers, but this is because responding enterprises total only two.

The results indicate that importance of quality control is not well recognized and that quality requirement of customers is not high. It is also evident that quality control guidance to SMEs and MEs is not sufficient.

Method of Quality Control

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
1	3	7	1	0	3	0	0
2	35	42	44	27	10	0	0
Method 3	19	25	36	20	33	20	50
4	16	12	8	33	10	20	0
5	3	4	5	13	17	20	50
6	24	10	6	7	27	40	0

Note: 1. Non

2. To check when trouble occurs

3. First product inspection

4. Simple check list including sampling

5. Control charts

6. Others

e) Defect ratio of products (ME407, EPM507)

The enterprises with the defect ratio of less than 5% are more than 73% for all the enterprises. The enterprises with the defect ratio of 6-10% and those with 11-20% combinedly account for 22- 23% in MEs, while they reach 17-27% in SMEs. In view of this as well as survey results concerning "quality control methods," improvement of manufacturing techniques in Colombia is desirable.

Defect Ratio of Products

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs				
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
1	0	0	0	0	0	0	0
2	6	3	4	0	3	20	0
3	16	20	13	27	14	0	0
4	78	77	83	73	83	80	100

Note: 1. more than 20%

2. 11-20%

3. 6-10%

4. 5% or less

f) Production planning method (ME408, EPM508)

In most cases, production is carried out based on "Rough scheduling based on experience." So far as MEs are concerned, 20% have "No plan" and seem to operate on a daily basis. The percentage of the enterprises which conduct production based on "Rough scheduling based on experience" reduces with increase in size.

The shares of both "Man-power planning" and "Man-power planning along with the capacity utilization rate" also increase as the enterprise grows. But even in the enterprises with 100-149 workers, the figure is still 40% in "Rough scheduling based on experience."

Production Planning Method

(Unit: %)

Size of enterprises No. of employees	MEs				SMEs			
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
1	22	20	10	7	7	0	0	
2	57	55	69	60	43	40	0	
How to schedule	3	8	8	5	7	13	0	50
4	8	12	9	13	17	40	0	
5	5	5	7	13	20	20	50	

- Note: 1. No schedule
 2. Rough scheduling based on experience
 3. Man-power planning
 4. Man-power planning along with the capacity utilization rate
 5. Others

5) Technical problems

a) Technical levels of workers (ME501, EPM601)

In the group of MEs, 15% of enterprises are considering that their technical levels of worker is "High", and "Middle", representing approximately 75%, while "Low" amounted to less than 10%, with no particular difference observed between the enterprises with 2-5 workers and those with 6-10 workers. SMEs showed the very similar pattern, but as workers increase, the share of "High" tends to rise while that of "Middle" is on the downcurve. Although all cases of the enterprises with more than 150 workers represent "High", this cannot be accepted as it is, since the number of samples is few.

Technical Level of Workers

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
High	14	17	14	0	26	40	100	16.5
Middle	78	73	80	69	68	60	0	74.8
Low	0	10	6	31	6	0	0	8.7

b) Technical assistance expected from public organizations (ME502, EPM602)

In the case of MEs, "Advice" is desired as a technical assistance provided by public organizations, accounting for 3/4, followed by "Training" with approximately 1/5. There is no case of "Inspection," while there are some cases of "Others." In the SMEs employing up to 99 workers, "Advice" and "Training" account for slightly less than a half, respectively, with "Others" occupying a small percentage. When the number of workers surpasses 100, the percentage of "Advice" becomes greater again.

Technical Assistance Expected
from Public Organization

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
Advisory	73	79	45	40	45	80	100	58.1
Training	22	21	46	47	41	20	0	34.8
Inspection	0	0	3	0	5	0	0	1.5
Others	5	0	6	13	9	0	0	5.6

c) Product design (ME503, EPM603)

Among MEs, about 2/3 of respondents carried out design by themselves, while 30% are provided with design drawings by customers. Other cases are few in number. In SMEs, as the number of workers increases, the number of in-house designs grows, while cases of design drawings supplied by customers diminishing as a result. All enterprises with workers surpassing 100 carry out the design by themselves.

Size of enterprises No. of employees	Designer							(Unit: %)	
	MEs			SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199		
Enterprises themselves	69	59	44	56	63	100	100	56.2	
Client supply	25	34	55	38	23	0	0	38.7	
Others	6	7	1	6	13	0	0	5.1	

d) Industrial standards (ME504, EPM604)

About 30% of MEs with 2-5 workers use standards of clients, but the figure increases of 50% in the case of the enterprises with 6-10 workers. Reversely, the ratio of own standards declined from around 40% to approximately 30%. The ratio of national standards stands at around 10% in both cases, while that of international standards amounts to approximately 10% in the case of enterprises with 2-5 workers and such a little figure as 3% for the enterprises with 6-10 workers. In the group of enterprises with 2-5 workers, there are about 10% that use no industrial standards. As for SMEs, there is the tendency of lesser use of customers' standards as the number of workers increases. 20%-30% of enterprises having less than 150 workers use own

standards. Data on enterprises with more than 150 workers, is not reliable since the number of samples is small.

Industrial Standards

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
None	8	3	3	6	3	0	0	4.2
Customer's standards	30	50	47	31	23	20	50	39.5
Own standards	41	32	23	25	27	20	0	27.9
Colombia's national standards	8	13	17	13	30	60	0	17.2
International standards	11	3	9	13	17	0	50	9.8
Others	3	0	0	13	0	0	0	1.4

e) Number of employees who can understand technical drawings (ME505, EPM605)

In MEs, the enterprises having 2-4 workers who can understand technical drawings accounted for more than 50%, and those with only one such employee represented 1/3 of the total. About 10% of the enterprises with 2-5 employees have one or more employees who cannot understand technical drawings. In the case of SMEs, as the number of workers increases, the enterprises with 1 and 2-4 workers who can understand technical drawings diminished in number, while the enterprises with 5-10 and more than 10 such workers tend to increase. As for the enterprises with over 150 workers, those having more than 10 workers who can understand technical drawings accounted for 100%, as expected.

Number of Employees Who Can
Understand Technical Drawings

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
None	11	7	4	0	4	0	0	5.1
One person	32	34	39	25	11	0	0	30.8
2- 4 persons	54	59	36	25	11	20	0	38.8
5-10 persons	3	0	11	31	25	40	0	11.2
more than 10	0	0	11	19	50	40	100	14.0

6) Problems in managerial aspect

a) Major competitors (ME601, EPM701)

For MEs with 2-5 workers, MEs and Sml-Es were competitors for slightly less than 20% each of them, while Med-Es and large enterprises accounted for 30%. As for MEs with 6-10 workers, the share of MEs as the major competitor increased to 30%, and Med-Es and Sml-Es accounted for 25% each, while large enterprises represented less than 10%. For Sml-Es, Med-Es and Sml-Es accounted for such large proportions as about 40% and 30%, respectively, while large enterprises represented approximately 10%. As for Med-Es, Med-Es were considered as major competitors by more than a half of respondents, while large enterprises accounted for close to 20%. In general, the MEs and SMEs perceive enterprise of similar sizes as major competitors.

Major Competitors

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs		Total
	2-5	6-10	11-49	50-199	
LEs	26	8	11	16	14.3
Med-Es	37	25	43	58	41.0
Sml-Es	20	25	30	14	24.4
MEs	15	31	9	5	12.9
Importers	2	6	6	5	5.1
None	0	6	2	3	2.3

b) Methods of calculating production cost (ME602, EPM702)

In MEs with 2-10 workers, "Rough calculation based on past experience", and "Based on the record (cost data)" reaches about 90% in total. The enterprises which adopt "Standardized calculation methods" totaled approximately 10%. In the case of Sml-Es with 11-30 workers, the same tendency as that for MEs can be observed, but as the number of workers increases, response "Rough calculation based on past experience" diminished while those of "Based on the record (cost data)" grew in number. But when the number of workers exceeds 100, response "Rough calculation based on past experience" also declined. When the number of workers is 150 or more, all enterprises employ "Standardized calculation methods."

How to Calculate the Cost of Products

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
Past experience	36	46	44	13	21	40	0	37.0
Past records (cost data)	50	46	46	60	69	40	0	50.2
Standardized calculation	11	8	5	27	7	20	100	10.0
Others	3	0	5	0	3	0	0	2.8

c) Backlog of orders (ME603, EPM703)

About 20% of enterprises with 2-5 workers and approximately 10% of those with 11-30 workers have no order backlog, but other enterprises have some. Among MEs, enterprises with the order backlog of not more than 7 days' work worth, those with 8-15 days' work worth and those with 16-30 days' work worth are days accounted for 30% each, while the enterprises with 6-10 workers have slightly more backlog.

In the case of enterprises with 11-49 workers, those with the order backlog of not more than 7 days accounted for 50%. The enterprises with 8-15 days' work worth are generally few, and only the proportion of 40% in the case of enterprises with 100-149 workers is notable. The enterprises with the order backlog of 16-30 days' work worth increase as the number of workers grows, reaching the highest 50% in the case of the enterprises with a total of 50-99 workers. The enterprises having the order backlog of 1-5 months are also on the increase as the number of workers grows, reaching the highest proportion of 1/3 of the total in the case of enterprises with 150-199 workers. There

are hardly any enterprises having the order backlog of more than 5 months.

Backlog Orders

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
None	22	0	12	0	0	0	0	8.5
Up to 7 days	25	35	52	50	21	20	33	39.2
8 - 15 days	28	30	15	6	11	40	0	19.3
16 - 30 days	22	30	12	25	50	20	33	23.6
1 - 5 months	0	5	6	19	14	20	33	7.5
More than 5 months	3	0	2	0	1	0	0	1.9

d) Stock of raw materials (ME604, EPM704)

MEs have less stock of raw materials than SMEs. In the group of MEs, the enterprises with the stock for less than 7 days' work almost accounted for 40%, but less than 30% for SMEs. Enterprises with the stock for 7 days or less accounted for 1/3 of those having more than 150 workers, but since the number of samples is small, this should be regarded as an extraordinary case. Generally speaking, many of the enterprises keep the stock of 8-30 days, accounting for more than a half of those with 49 or less workers.

Enterprises with the stock of 1-3 months increase as the number of workers grows, and they accounted for 80% of enterprises with 100-149 workers. No MEs had the stock of 3-6 months, while only 20-30% of enterprises with not less than 50 workers had the level of inventory. Enterprises with the stock of more than 6 months is very few, accounting for only around 3% of the total.

Stock of Raw Materials Kept for Production

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
Up to 7 days	39	35	25	13	11	0	33	26.1
8 - 30 days	56	50	51	56	25	0	33	46.9
1 - 3 months	3	15	14	31	32	80	0	17.5
3 - 6 months	0	0	7	0	25	20	33	7.1
More than 6 months	3	0	2	0	7	0	0	2.4

e) Stock of semi-finished and finished products
(ME605, EPM705)

The enterprises with no stock of semi-finished and finished products tend to decrease as the number of workers becomes smaller. Their share in MEs is about 30%, but it amounts to around 20% in the case of enterprises with 100-149 workers. The enterprises which sometimes have the stock generally account for a large proportion, reaching 30-50% in all enterprise sizes except those with 100-149 workers. The enterprises often holding the stock are generally few, standing at slightly more than 10% in MEs and 6% in SMEs. The enterprises always having such stock account for less than 30% in businesses with less than 100 employees and surpass 60% among those with hundreds of workers. It is considered that enterprises having stock at the level of "No" and "Sometimes" carry out a customized production.

Semi-products and Final Products
Accumulated in Factory

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
None	24	35	29	19	13	20	0	25.9
Sometimes	41	33	51	50	40	0	33	42.6
Often	14	10	4	0	17	0	0	7.9
Always	22	23	16	31	30	80	67	23.6

- f) Reasons for often or always holding the stock of work in process and final products.
(ME 606, EPM 706)

The most frequently responded reason for often or always holding the stock of work semi-finished or finished products is "For immediate delivery to clients." Namely, the share was close to 60% in MEs and about 70% for SMEs. Next comes the answer of "In order to correspond to the fluctuating demand for products."

Reasons Why Semi-finished and Finished Products
are Often or Always Kept in Stock

(Unit: %)

Size of enterprises No. of employees	MEs		SMEs					Total
	2-5	6-10	11-30	31-49	50-99	100-149	150-199	
Fluctuating demand	11	21	36	38	17	50	100	27.2
Immediate delivery	72	64	61	50	61	50	0	60.9
Incorrect production schedule	0	14	0	0	11	0	0	4.3
Others	17	0	4	13	11	0	0	7.6

7) Problems related to financing

a) Profitability

It appears that the return on capital is high in MEs with 2 - 5 employees and Med-Es and enterprises in between, namely MEs with 6 - 10 employees and Sml-Es, show lower rates of return on capital. It is conceivable that enterprises having low rate of return employ labor intensive production method. The return on sales decreases as enterprises or sales grows larger. The opposite trend is observed for the capital turnover ratio.

Profitability

Size of enterprise	MEs		Sml-Es	Med-Es
No. of employees	2-5	6-10	11-49	50-199
Return on capital (rate)	1.17	0.66	0.52	1.35
Income before tax/Annual sales (profit margin)(rate)	0.53	0.20	0.34	0.07
Annual sales/Total capital (turnover) (times)	2.48	3.69	4.10	16.22

b) Productivity

Value added per company naturally increases with increase in enterprise size. Sml-Es show the highest value added per employee, followed by Med-Es and MEs respectively.

Productivity

(Million pesos)

Size of enterprise	MEs		Sml-Es	Med-Es
	2-5	6-10	11-49	50-199
No. of employees				
Value added/ enterprise	3.20	8.59	152.61	251.70
Value added/ employee	0.83	1.14	5.97	2.59

c) Sources of short-term loans (ME703, EPM803)

The percentage of loans from sources other than financial institutions increases for smaller enterprises. Loans from customers, middle man, friends and relatives, and other sources accounted for 52.4% of all the loans made by MEs (2 to 5 employees) and 35.5% for MEs (6 to 10 employees), while the percentage is only 12.2% for the Sml-Es and 4.8% for Med-Es.

Use of bank loans increases with increase in enterprise size and represents a majority of loans by Sml-Es. However, the share of bank loans decreases for Med-Es probably because of increase in availability of financial sources and so on.

Thus, it appears that a major source of short-term loans shifts from informal to formal sources as enterprises become larger probably due to the fact that they require large amounts of funds.

Sources of Short-term Loans

Size of enterprise No. of employees	MEs				Sml-Es		Med-Es	
	2-5 Nos. %		6-10 Nos. %		11-49 Nos. %		50-199 Nos. %	
Banks	3	14.3	12	38.7	45	54.9	26	41.3
Trade associations	1	4.8	4	12.9	8	9.8	9	14.3
Cooperatives	0	0	0	0	0	0	0	0
Development finance corporation	1	4.8	1	3.2	0	0	5	7.9
Local governments	2	9.5	2	6.5	11	13.4	10	15.9
Government treasury	3	14.3	1	3.2	8	9.8	10	15.9
Customers	0	0	0	0	1	1.2	0	0
Middle man	2	9.5	4	12.9	1	1.2	0	0
Friends and relatives	2	9.5	1	3.2	2	2.4	2	3.2
Others	7	33.3	6	19.4	6	7.3	1	1.6
Total	21	100	31	100	82	100	63	100

d) Major purposes of short-term loans (ME704, EPM804)

While most of short-term loans are used as working capital, 8% are used for repayment of loans to suggest tight financial position.

Major Purposes of Short-term Loans

	Loans Nos.	%
Capital investment	10	5.4
Working capital	144	77.4
Loan repayment	15	8.1
Research & development	3	1.6
Others	14	7.5
<hr/>		
Total	186	100

e) Collateral for short-term loans (ME708, EPM808)

Except for the MEs employing 2 to 5 employees, the number of loans with collateral is larger than non-collateral loans. It is learned that MEs with 2 - 5 employees tend to raise loan from informal financing sources which do not require collateral, since those enterprises are unable to provide sufficient collateral. Then, as enterprises become larger, they raise loan from formal sources which require collateral, and increased financial requirements make it difficult to borrow money without collateral.

Collateral for Short-term Loans

Size of enterprise <hr/> No. of employees <hr/>	MEs		Sml-Es		Med-Es			
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Loans with collateral	7	41.2	18	62.1	54	72.0	30	65.2
Loans without collateral	10	58.8	11	37.9	21	28.0	16	34.8
<hr/>								
Total	17	100	29	100	75	100	46	100

f) Financial services used for long-term financing (ME709, EPM809)

For both SMEs and MEs, finance from own financing source or equity accounts for 30% to 40% of sources of long-term finance. On the other hand, institutional credit service is mainly used by Med-Es (40%). The percentage of general bank loans increases with scale of enterprises from MEs to Sml-Es, suggesting increase in accessibility to bank service. Then, the share of general bank loans dropped sharply to 19.4% for Med-Es, probably because of increase in the use of institutional credit service.

Financial Services Used for Long-term Financing

Size of enterprise No. of employees	MEs				Sml-Es		Med-Es	
	2-5 Nos. %		6-10 Nos. %		11-49 Nos. %		50-199 Nos. %	
General bank loans	4	26.7	4	28.6	14	31.8	7	19.4
Institutional credit	3	20.0	0	0	8	18.2	14	38.9
Own capital (increase)	5	33.3	5	35.7	18	40.9	13	36.1
Debentures	1	6.7	0	0	0	0	0	0
Subsidy	0	0	1	7.1	2	4.6	1	2.8
Others	2	13.3	4	28.6	2	4.6	1	2.8
Total	15	100	14	100	44	100	36	100

g) Source of long-term loans (ME711, EPM811)

Use of development banks increases with increase in company size, while loans from friends and relatives, and other informal sources increase for smaller companies.

Sources of Long-term Loans

Size of enterprise No. of employees	MEs				Sml-Es		Med-Es	
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Commercial banks	1	9.1	3	25.0	8	22.9	3	11.5
Development banks	1	9.1	2	16.7	8	22.9	15	57.7
Financial corporations	0	0	1	8.3	9	25.7	1	3.8
Central bank's credit line	1	9.1	0	0	1	2.9	2	7.7
Supplier's credit	0	0	0	0	4	11.4	0	0
Customers	1	9.1	0	0	2	5.7	1	3.8
Other credit lines	1	9.1	2	16.7	1	2.9	2	7.7
Foundations	2	18.2	1	8.3	0	0	1	3.8
Other banks	0	0	0	0	0	0	1	3.8
Friends and relatives	4	36.4	3	25.0	2	5.7	0	0
Others	0	0	0	0	0	0	0	0
Total	11	100	12	100	35	100	26	100

h) Major purposes of long-term loans (ME712, EPM812)

Long-term loans are mainly used as working capital for all the enterprises.

For Med-Es, over 80% of long-term loans are used for working capital and capital investment. In particular, 52% are used as working capital. 4% go to research and development. On the other hand, working capital alone accounts for 84% of long-term loans by Sml-Es, and 8% for research and development.

For MEs employing 6 to 10 persons, working capital and capital investment represent more than 80%, and working capital alone exceeds 60%.

One half of the remaining share is used for research and development.

Finally, MEs employing 2 to 5 persons use all long-term loans for working capital.

Major Purposes of Long-term Loans

Size of enterprise No. of employees	MEs				Sml-Es		Med-Es	
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Capital investment	0	0	2	18.2	1	4.0	7	30.4
Working capital	9	100	7	63.6	21	84.0	12	52.2
Loan repayment	0	0	0	0	0	0	1	4.4
Research & develop- ment	0	0	1	9.1	2	8.0	1	4.4
Others	0	0	1	9.1	1	4.0	2	8.7
Total	9	100	11	100	25	100	23	100

i) Collateral for long-term loans (ME716, EPM816)

The percentage of long-term loans without collateral is much lower than short-term loans; the highest (40%) for MEs employing 2 to 5 persons. All MEs employing 6 to 10 persons obtain long-term loans with collateral. The percentage of unsecured long-term loans for Sml-Es is 30% and that for Med-Es 17%, probably due to increase in amounts of loans with increase in enterprise size. In other words, collateral becomes increasingly important with increase in amounts of long-term loans, for introduction of large-scale and/or modern equipment in particular.

Collateral for Long-term Loans

Size of enterprise	MEs		Sml-Es		Med-Es			
No. of employees	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Loans with collateral	5	62.5	8	100.0	16	69.6	14	82.4
Loans without collateral	3	37.5	0	0	7	30.4	3	17.6
Total	8	100	8	100	23	100	17	100

j) Reasons for using informal loans (ME717, EPM817)

For all company sizes, simple procedure is cited as the largest reason for using informal loans. This clearly indicates that the streamlining of loan application is essential in promoting the use of formal financial services for MEs and SMEs. Availability of loans without collateral is cited as another major reason by Sml-Es. This suggests that financial requirements for Sml-Es cannot be covered by their own assets, indicating a need for loan guaranty and other measures to promote the use of formal credit services.

Note: The number of enterprises who are using informal loans (in the foregoing table) is less than the number of enterprises who responded "reasons for using informal loans". This indicates that many enterprises have once used informal loans though they do not use informal loans at this moment.

Reasons for Using Informal Loans

Size of enterprise	MEs				Sml-Es		Med-Es	
No. of employees	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Simple procedure	5	62.5	6	50.0	16	42.1	11	73.3
No collateral	0	0	1	8.3	16	42.1	1	6.7
No loan limit	2	25.0	0	0	0	0	0	0
Upon demand from intermediary	0	0	1	8.3	3	7.9	2	13.3
Others	1	12.5	4	33.4	3	7.9	1	6.7
Total	8	100	12	100	38	100	15	100

k) Problems related to financing (ME718, EPM818)

Major problems related to financing include insufficient collateral, strict loan terms, complicated procedure, and availability of loan less than the required amount, with some variation according to company sizes.

There is relatively a small number of responses among MEs to point out difficulty in documentation, probably because they mainly apply informal credit which does not require complicated procedure.

Problems Related to Financing

Size of enterprise No. of employees	MEs				Sml-Es		Med-Es	
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Insufficient collateral	16	13.2	16	16.3	29	15.3	8	10.8
Difficulty in documentation	6	5.0	4	4.1	14	7.4	7	9.5
Strict loan terms	18	14.9	14	14.3	34	18.0	16	21.6
Insufficient information	14	11.6	8	8.2	22	11.6	14	18.9
Without good relation to banks	22	18.2	18	18.4	28	14.8	7	9.5
Loan below required amount	20	16.5	8	8.2	22	11.6	5	6.8
Inability to secure own funds	5	4.1	5	5.1	10	5.3	3	4.1
Complicated procedure	19	15.7	23	23.5	25	13.2	13	17.6
Others	1	0.8	2	2.0	5	2.7	1	1.3
Total	121	100	98	100	189	100	74	100

1) Opinions on institutional credit service (ME719, EPM819)

Use of institutional credit service increases with increase in company size, probably because smaller companies do not know even existence of such services. Thus, except for those which do not know about the institutional credit service, most of companies use it currently or intend to use it in the future. Given such a large demand for institutional credit service, the government is expected to step up an effort to make its availability and advantages widely known to the public.

Opinions on Institutional Credit Service

Size of enterprise No. of employees	MEs		Sml-Es		Med-Es			
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Currently using and intend to use in the future	0	0	3	14.3	11	24.4	11	47.8
Currently using but not intend to use in the future	1	7.1	0	0	1	2.2	0	0
Have not used but intend to use in the future	7	50.0	3	14.3	13	28.9	7	30.4
Have not used and do not intend to use in the future	0	0	0	0	2	4.4	1	4.4
Do not know such services	6	42.9	15	71.4	18	40.0	4	17.4
Total	14	100	21	100	45	100	23	100

m) Loan guaranty (ME721, EPM821)

Loan guaranty service is used by 35% of loans by Med-Es, 16% by Sml-Es, and 24% by MEs employing 6 to 10 persons.

As most of other companies do not know about the service or have not used but intend to use in the future, its availability should be more widely advertised and its functions and funds need to be strengthened.

Opinions on Loan Guaranty Service

Size of enterprise No. of employees	MEs		Sml-Es		Med-Es			
	2-5		6-10		11-49		50-199	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Currently using and intend to use in the future	0	0	5	23.8	7	16.3	8	34.8
Currently using but not intend to use in the future	0	0	0	0	1	2.3	0	0
Have not used but intend to use in the future	6	42.9	2	9.5	13	30.2	10	43.4
Have not used and do not intend to use in the future	0	0	1	4.8	4	9.3	1	4.3
Do not know such service	8	57.1	13	61.9	18	41.9	4	17.3
Total	14	100	21	100	43	100	23	100

n) Lease service (ME722, EPM822)

Lease service is not widely known, nor used among metalworking industries, excepting Med-Es. Many of Sml-Es and MEs do not know about the service but intend to use it in the future. In light of high potential demand for lease service, its availability should be more widely advertised.

Opinions on Lease Service

Size of enterprise No. of employees	MEs		6-10		Sml-Es 11-49		Med-Es 50-199	
	2-5							
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Currently using and intend to use in the future	0	0	1	5.0	3	7.5	7	33.3
Currently using but not intend in the future	0	0	0	0	2	5.0	1	4.8
Have not used but intend to use in the future	5	38.5	4	20.0	14	35.0	7	33.3
Have not used and do not intend to use in the future	1	7.7	1	5.0	2	5.0	3	14.3
Do not know such service	7	53.9	14	70.0	19	47.5	3	14.3
Total	13	100	20	100	40	100	21	100

o) Reasonable interest rates for borrowers (ME723, 724, EPM823, 824)

Present loan rates in Colombia are around 2% per month for low interest institutional loans, 3% for loans from commercial banks, and estimated 5% to 6% for informal loans. The responses to this question suggest that the enterprises cited interest rates slightly below those which are actually applied to their own loans. It is notable that Sml-Es cited 3.5% as a reasonable interest rate, indicating that the enterprise size has the highest financial demand and accepts relatively high interest rates.

Reasonable Interest Rates

(% per month)

Size of enterprise No. of employees	MEs		Sml-Es	Med-Es
	2-5	6-10	11-49	50-199
Desirable interest rate on short-term loan	3.1	1.8	3.5	2.4
Desirable interest rate on long-term loan	2.9	2.1	3.5	2.5

p) Use of financial services (ME705, 706, 712, 713, EPM805, 806, 812, 813)

In actual short-term fund raising, loan rates increase with decrease in company size, resulting in difference in 0.5% monthly between Med-Es and MEs employing 2 to 5 persons. In contrast, interest rates for long-term loans tend to be lower for smaller companies. Amount of loan per enterprise naturally tends to increase with increase in company size, both for long- and short-term loans.

The above trend in short-term loan rates reflects the fact that short-term loans are usually required as settlement funds and thus repaid within a short period of time, resulting in relatively a small amount of interest payment regardless of high interest rates.

Use of Financial Service

(Unit: %)

Size of enterprise	MEs		Sml-Es	Med-Es
	2-5	6-10	11-49	50-199
No. of employees				
Short-term loan rate (monthly)	3.3	3.1	3.1	2.8
Long-term loan rate (annual)	19.5	19.9	23.7	21.6

8) Future plans

a) Future prospect for products (ME801, EPM901)

As for the future prospect for products manufactured by themselves, most of the enterprises said "Good" or "Normal." The enterprises which responded "Not good" amount to only 6 of 210 enterprises. Classified by sector, these enterprises belong to agricultural machinery, steel structures, furniture and machine tool industries.

Prospect for Products

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of enterprises	34	39	82	17	30	5	3
Good	79	77	72	53	84	80	33
Normal	15	18	27	47	13	20	67
Not good	6	5	1	0	3	0	0
Total	100	100	100	100	100	100	100

b) Prospects for demand (ME802, EPM902)

With regard to prospects for demand, some difference is observed between MEs and SMEs. Enterprises in the machine tool sector in MEs and furniture and transportation equipment sectors in SMEs are expecting increase in demand. Both MEs and SMEs expect 40-50% increase in the demand 5 years hence.

Demand Increase Expected for Products

(Unit: %)

	MEs		SMEs	
	in 3 years	in 5 years	in 3 years	in 5 years
Demand increase expected	37.0	50.3	28.9	38.8

c) Expansion plans (ME803, EPM903)

The enterprises having production expansion plans surpass a half. More than 75% of MEs have expansion plan in the future. In general, most of entrepreneurs are bright prospect in future demand and desire to invest for business expansion.

Production Expansion Plan

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprise	34	37	70	16	29	4	2
Yes	79	76	73	63	66	75	50
No	21	24	27	37	34	25	50
Total	100	100	100	100	100	100	100

d) Financial plans (ME804-806, EPM904-906)

The average investment per enterprise required for their expansion plan is shown below. Capital requirement for such investment is estimated as about 10 million Pesos per enterprise for MEs, 43 million Pesos for Sml-Es and 148 million Pesos for Med-Es. Although the sum of own finance and loan requirement does not agree with the total capital requirement due to inconsistency in responses to the questionnaire, the total capital requirement is planned to be met by 30% equity and 70% loan.

Amount of Total Investment

(Unit: million pesos)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	27	28	51	10	19	3	1
Total investment	12.20	7.71	41.87	49.88	95.20	233.33	900.00
Self financing	3.81	3.70	12.13	12.50	29.79	93.33	300.00
Loan	10.15	5.76	32.95	37.38	63.64	133.33	600.00

e) Implementation plans (ME807, EPM907)

Most of the enterprises which have expansion plans intend to realize the expansion within 3 years. Thus, although capital requirement for investment is remarkably big, most of the enterprises visited by the Study Team complained about lack of access to financing sources. The financial support policy toward MEs and SMEs is expected to be an important element in the promotion of private enterprises with strong willingness for business expansion.

Implementation of Production Expansion Plan

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
No. of employees	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of enterprises	28	28	52	11	19	3	1
In less than 3 years	90	100	94	91	100	100	100
In 3 - 5 years	0	0	4	9	0	0	0
In more than 5 years	4	0	2	0	0	0	0
Total	100	100	100	100	100	100	100

9) Technical improvement and governmental assistance

a) Technical improvement efforts (ME809, EPM909)

The experts of the Study Team diagnosed that technology employed by MEs and SMEs was not necessarily modernized but mostly obsolete from international standards especially in smaller enterprises. However, in the questionnaire survey, approximate 90% among both MEs and SMEs responded that they were making technical improvement efforts. This indicates that the enterprises recognize the necessity of technology modernization and have strong willingness to improve their technology but suitable technical assistance including information services on modern technology is insufficient.

Technical Improvement Efforts

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of enterprises	36	41	82	16	29	5	2
Yes	92	83	90	81	93	100	100
No	8	17	10	19	7	0	0
Total	100	100	100	100	100	100	100

b) Methods for technical improvement
(ME810, EPM910)

The methods adopted by the enterprises for their technical improvement are centered on the introduction of new machinery and technical training in both MEs and SMEs. The employment of qualified persons are seen in MEs and Sml-Es, although its proportion is small. It can be said that most of entrepreneurs are considering that the technology improvement can be accomplished through introduction of new machinery and training of workers. Much expectations are placed on the assistance for the introduction of new machinery and improvement of technical training organizations.

How to Improve Technology

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	33	34	70	12	26	5	2
Introduction of new machine	55	56	59	42	62	60	50
Technical training	27	32	39	42	31	40	50
Hiring of qualified technicians	6	6	2	16	4	0	0
Others	12	6	0	0	3	0	0
Total	100	100	100	100	100	100	100

c) Interest in new merchandise and technology of foreign countries (ME811, EPM911)

The enterprises showing interest in new merchandise and technology of foreign countries account for about 90% in both MEs and SMEs, suggesting a need for establishment or reinforcement of organizations to supply technology information on foreign countries.

Interests in New Merchandise and Technology of Foreign Country

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	35	41	79	16	28	5	3
Very much	100	98	87	75	79	100	100
More or less	0	0	4	19	7	0	0
None	0	2	9	6	14	0	0
Total	100	100	100	100	100	100	100

d) Methods for obtaining information about new merchandise and technology of foreign countries (ME812, EPM912)

As for the method of getting the information about new merchandise and technology, general magazines and specialized technical magazines account for the largest proportion in both MEs and SMEs, followed by exhibitions or fairs. These results show that the "policy for the spread of knowledge" through conveyance of information and publicity activities about new merchandise and technology is an effective means as well as an important factor for the fostering and promotion of MEs and SMEs.

Information Sources about New Merchandise and Technology

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of enterprises	35	37	81	17	30	5	3
Magazine	37	46	47	59	50	60	100
Fair exhibition	34	22	33	35	37	0	0
others	29	32	20	6	13	40	0
Total	100	100	100	100	100	100	100

e) Outlook for competition (ME813, EPM913)

Concerning the outlook for future competition, the enterprises anticipating "No change" are in a higher proportion in the case of MEs, which indicates that the tendency of satisfaction with the existing business performance is stronger among MEs. SMEs, when compared with MEs, tend to foresee a change for more intense competition. The gap in the recognition between

MEs and SMEs is supposedly due to the difference in the products manufactured. It is believed necessary to raise their awareness in the rigorous nature of market principles.

Outlook for Competition

(Unit: %)

Size of enterprises	MEs		Sml-Es			Med-Es	
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	32	34	59	16	27	5	3
No change	44	32	15	19	37	0	33
Moderate	28	27	32	44	41	60	0
Serious	28	41	53	37	22	40	67
Total	100	100	100	100	100	100	100

f) Governmental assistance expected (ME814, EPM914)

Governmental assistance most strongly desired by private enterprises is financial support, which was indicated by more than 70% of MEs and more than 60% of SMEs. This is followed by technical assistance and marketing support. As stated in the preceding section, the policy for support through financial service and technical training is essential factor for the rearing and promotion of private enterprises.

Government Assistance Expected

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	36	39	81	16	28	5	3
Financial support	70	72	62	69	58	60	67
Technical support	19	15	32	25	23	0	33
Marketing support	11	10	4	6	0	20	0
Others	0	3	2	0	19	20	0
Total	100	100	100	100	100	100	100

g) Interest in industrial park (ME815, EPM915)

The smaller enterprises show stronger interest in industrial park. The result accords with the observation obtained through diagnosis survey made by the Study Team. Working environment in factories of MEs and Sml-Es is poor and factory space is not necessarily sufficient for future expansion. This condition seems to be reflected in the responses of MEs and Sml-Es.

Interests in Industrial Park

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	3	40	79	17	26	5	1
Interested	91	78	82	88	54	60	0
No interested	9	22	18	12	46	40	100
Total	100	100	100	100	100	100	100

h) Institutional low-interest loans (ME816, EPM916)

Most enterprises in both MEs and SMEs expressed their desire for low-interest rate governmental loans. Although they hope for low-interest rate loans, the enterprises who responded "Depending on the condition" increase with increase in enterprise size. During the field survey, many enterprises pointed out strict loan terms including complicated application procedure, suggesting a need for improvement in the method of institutional financing.

Institutional Low-interest Loan

(Unit: %)

Size of enterprises	MEs		Sml-Es		Med-Es		
	2-5	6-10	11-30	31-49	50-99	100-149	150-199
No. of employees							
No. of enterprises	35	41	85	17	26	5	2
Favorable	77	68	48	59	58	40	0
Depending on the condition	23	29	47	41	38	60	100
Not favorable	0	3	5	0	4	0	0
Total	100	100	100	100	100	100	100

(3) Analysis of questionnaire survey and corporate diagnosis on large enterprises

The questionnaire survey on LEs and their corporate diagnosis were carried out to identify their subcontract relations with SMEs and MEs. As already stated, no computer analysis was conducted for the results of the survey.

This section therefore is limited to the summary of their subcontract relations learned through their responses to the questionnaire and of corporate analysis regarding them.

The questionnaires collected from LEs were 10 in

Bogota, 7 in Medellin and 1 in Cali (Palmira), for a total of 18. The number of enterprises diagnosed by the team members totaled 9.

The following numbers (question code No.) in parentheses are in accord with the numbers in the questionnaire.

1) Outline of enterprises

a) Year of establishment (GE004)

As seen in the table below, the enterprises established 26 - 35 years ago showed the largest share, accounting for 44% of the total.

Year of Establishment	
Year	No. of enterprises
1935 - 1944	2
1945 - 1954	3
1955 - 1964	8
1965 - 1974	3
1975 - 1984	1
Unknown	1
Total	18

b) Number of workers (GE005)

For the purpose of this study, large enterprises are defined as those with not less than 200 workers. However, after distributing the questionnaires to LEs listed the directory furnished by DNP, it was discovered that the enterprises with less than 200 employees amounted to 39% of the total, as shown in the table below. It has not yet been confirmed, however, whether these enterprises were originally large but became

medium-sized because of business stagnation or they were medium-sized from the beginning.

Among those classified as LEs, the enterprises with 200 - 299 employees accounted for the largest share, accounting for 33% of the total, as can be learned from the table below.

No. of Workers	
No. of employees	No. of enterprises
less than 50	2
51 - 150	3
151 - 199	2
200 - 299	6
1,000 - 1,300	3
1,301 - 2,200	2

Total	18

c) Total annual sales (GE006)

The enterprises with total annual sales of less than 1 billion pesos are those having less than 200 employees. Their average annual sales are 440 million pesos.

The enterprises recording annual sales of 57 - 60 billion pesos are in automobile assembly, while those with annual sales of 12 - 15 billion pesos mass produce large products including tanks and boilers.

The average annual sales of the 13 enterprises excluding the above 2 and three companies with no response are approximately 2.3 billion pesos.

Total Annual Sales

Total annual sales	No. of enterprises
(Unit: Million pesos)	
- 1,000	3
1,001 - 2,000	6
2,001 - 3,000	1
3,001 - 4,000	2
9,001 - 10,000	1
12,001 - 15,000	1
57,001 - 60,000	1
No response	3
Total	18

d) Products (GE101)

Major products of these enterprises are automobiles, motorcycles and their parts in the transportation equipment sector; motors, transformers and other electric equipment sector in the electrical industrial equipment sector; chairs, tables and other kitchen goods in the furniture sector; and mowers and parts of such farming machinery in the agricultural machinery sector.

Products

Sectors	No. of enterprises
Agricultural machinery	2
Construction equipment	0
Machine tools	0
Transportation equipment	5
Electrical household appliance	1
Industrial electric machinery	4
Furniture	2
Industrial machinery	1
Steel structure and metal products	1
Other machineries	2
<hr style="border-top: 1px dashed black;"/>	
Total	18

2) Outline of subcontract relations (GE300)

The outline of subcontract relations will be stated in line with items in the questionnaire.

- a) Is your enterprises subcontracting any part of work to other enterprises? (GE301)

The enterprises using subcontractors amounted to 10 out of the total of 18, accounting for approximately 56% of the total.

Subcontract Relations

No. of employees	No. of enterprises	Offering	Not offering	No response
Less than 50	2	2	-	-
51 - 150	3	1	1	1
151 - 199	2	1	1	-
200 - 299	6	3	3	-
1,000 - 1,300	3	1	1	1
1,301 - 2,200	2	2	-	-
<hr/>				
Total	18	10	6	2

b) If your answer to GE301 is "Yes," how did you find subcontractors? (GE302)

The responses of the 10 companies using subcontractors are as follows, indicating the active approach by subcontractors.

Way to Find Subcontractors

Contents of responses	No of enterprises
Offer from subcontractors	4
By open tender	1
Private route	3
Bolsa de Subcontratacion de "FEDEMETAL"	1
Bolsa de Subcontratacion de "ANDI"	1
<hr/>	
Total	10

c) What is your plan on the subcontracting? (GE304)

As can be seen in the following table, the enterprises can be divided into those willing to expand subcontracting, accounting for 50%, and those planning to maintain the existing state, 50%.

Future Plan on Subcontracting

Contents of responses	No. of enterprises
Increase order volume	2
Increase order volume and No. of subcontracting enterprises	3
Keep current condition	5
Total	10

d) If your answer to GE301 is "No," what is the reason? (GE305)

The responses of the 7 companies not using subcontractors (questionnaire survey: 6 companies, corporate diagnosis: 1 company) are summarized as follows:

Reasons for not Using Subcontractors

Contents of responses	No. of responses
Quality of subcontractors' products is not satisfactory	1
Required quantity is beyond the production capacity of subcontractors	2
Subcontractors' delivery is not punctual	2
Expensive	1
Own production capacity is sufficient enough	4
Total	10

The business line of the enterprises stating in response that required quantity is more than the production capacity of subcontractors is the volume manufactured products with a few types in

the electrical industrial equipment and furniture (especially kitchen furniture) sector.

e) If your answer to GE301 is "No," do you intend to use subcontractors? (GE306)

Of the six enterprises who gave the negative response, five (about 83%) responded that they have no intention of utilizing subcontractors in the future, while one other enterprise made no response.

3) Overall analysis

Based on the above responses to the questionnaire by large enterprises, their relations with subcontractors, together with results of corporate diagnosis, are summarized as follows;

As seen above, the enterprises using subcontractors are unexpectedly few, amounting to 10 out of 18 in total, although the number of samples is not many. This tendency is also observed in corporate diagnosis of SMEs. The main reasons for this are considered to be unsatisfactory product quality, delay in the delivery and high cost. Meanwhile, the enterprises which responded that the production capacity of themselves is sufficient are supposedly not required to use subcontractors, excepting urgent cases, since they have improved their equipment and facilities to satisfactory levels, recognizing inferior quality of subcontractors' products. This is considered to further confine the subcontractors' market within the narrow market of Colombia.

Some of these large enterprises, however, use subcontractors in local installation work and manufacture of plastic containers and other small part.

Regarding large enterprises' assistance to subcontractors, few enterprises supply raw materials, but

many businesses enforce technical training and inspection. As for the kinds of assistance required, many enterprises consider that assistance is needed in the form of techniques, financing and managerial guidance in this order.